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THE COMMONWEALTH OF MASSACHUSETTS

REPORT
OF THE
STATE BOARD
OF
LABOR AND INDUSTRIES

1917



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The Commonwealth of Massachusetts.

FIFTH ANNUAL REPORT

OF THE

STATE BOARD OF LABOR AND INDUSTRIES.

JANUARY, 1918.



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STATE BOARD OF LABOR AND INDUSTRIES.

ALFRED W. DONOVAN, *Chairman.*

JOHN F. TOBIN.

ALFRED H. QUESSY, M.D.

SAMUEL ROSS.

MRS. DAVIS R. DEWEY.

EDWIN MULREADY, *Commissioner of Labor.*

JOHN P. MEADE, *Deputy Commissioner of Labor (Labor).*

THOMAS F. HARRINGTON, M.D., *Deputy Commissioner of Labor
(Medical).*

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The Commonwealth of Massachusetts.

REPORT OF THE STATE BOARD OF LABOR AND INDUSTRIES.

To the Honorable Senate and House of Representatives.

The State Board of Labor and Industries has the honor to submit herewith its fifth annual report.

The term of Mrs. Davis R. Dewey expired in March, 1917, and she was reappointed for a term of five years.

Mr. John P. Meade was appointed Deputy Commissioner of Labor, and qualified for the position May 26, 1917, the Governor and Council approving the appointment for the term of one year.

Forty-two meetings of the Board were held during the year, with an attendance of 72½ per cent. of the members. Fourteen conferences and 11 hearings were held, and 11 decisions were rendered.

The report of the Commissioner of Labor attached hereto is made a part of this report.

RULES AND REGULATIONS.

In accordance with chapter 308 of the General Acts of 1916, the State Board of Labor and Industries has made rules and regulations governing industrial hazards.

"Rules and Regulations relating to Safe and Sanitary Working Conditions in Foundries and the Employment of Women in Core Rooms" were completed and adopted by the Board on Feb. 6, 1917. The advisory committee which assisted the Board in the preparation of these rules was as follows: —

Representing the Employers.

Mr. Walter C. Fish, General Electric Company, Lynn, Mass.

Mr. R. D. Reed, H. B. Smith Company, Westfield, Mass.

Mr. Frank Williams, Crompton-Knowles Company, Worcester, Mass.

Mr. Richard E. Warner, White-Warner Company, Taunton, Mass.

Representing the Employees.

Mr. John R. O'Leary, Worcester, Mass.
Mr. Eugene L. Murphy, Norwood, Mass.
Mr. James A. Loveday, Pittsfield, Mass.
Mr. William John, Boston, Mass.

"Rules and Regulations for the Prevention of Accidents in Building Operations" were adopted by the Board April 10, 1917, and the advisory committee comprised the following:—

Mr. William H. Sayward, Master Builders Association of Boston.
Mr. Charles R. Gow, Master Builders Association of Boston.
Mr. Ira G. Hersey, Building Trades Employers Association of Boston.
Mr. George B. Morecroft, Building Trades Employers Association of Boston.
Mr. William R. Mahoney, Building Trades Employers Association of Boston.
Mr. Edward C. Beck, Master House Painters and Decorators Association of Massachusetts.
Mr. Dennis J. Mahoney, State Organization of Bricklayers, Masons and Plasterers of the International Union of America.
Mr. A. J. Howlett, Allied Building Trades Council of Boston and vicinity.
Mr. Edward F. Kelley, Allied Building Trades Council of Boston and vicinity.
Mr. Patrick H. Triggs, Representative, Massachusetts State Conference of Painters.
Mr. John J. Fitzhenry, Painters District Council, No. 44.
Mr. Ignatius McNulty, A. F. of L. Building Trades Council of Boston and vicinity.
Mr. John F. Stevens, A. F. of L. Building Trades Council of Boston and vicinity.
Mr. John Carroll, Cement Finishers Association.
Mr. George N. Brooks, Norfolk County Building Trades Council.

MASSACHUSETTS MEDICAL SOCIETY.

As the result of a paper presented by a member of this department at the one hundred and thirty-seventh annual meeting of the Massachusetts Medical Society, a committee was appointed for the purpose of co-operating with the State Board of Labor and Industries in the work of reducing occupational diseases and industrial accidents. The names of the committee are a guarantee of the work which will be accomplished by the close co-operation of this powerful organization with a State

Board, and will serve to stimulate a keener interest on the part of the medical profession to greater appreciation of the important part occupation plays in causing the ill health now so prevalent among industrial workers.

The committee has met with the Board, and plans have been adopted for a series of conferences in different localities where local interest may be aroused.

DEFENCE OF THE COMMONWEALTH IN TIME OF WAR.

By the provisions of chapter 342 of the General Acts of 1917, this Board was charged with the responsibility of appointing a committee of five persons and of giving a name to the committee so selected. The Board appointed as such a committee Hon. William M. Butler of New Bedford and Mr. Howard Coonley, president of the Walworth Manufacturing Company, Boston, as the representatives of employers of labor, and Mr. George H. Wrenn, president of the Massachusetts Branch of the American Federation of Labor, and Miss Mary E. Meehan, president of Local No. 207, International Bookbinders Brotherhood, as representatives of wage earners, the Commissioner of Labor acting *ex officio* as chairman of the committee.

As a title expressive of the work of this committee, the Board selected the name of "War Emergency Industrial Commission." A report of the work of this commission is attached hereto.

LEGISLATIVE RECOMMENDATIONS.

The following recommendations for legislation are respectfully submitted for the action of the Legislature. Each one of these recommendations is based on the experiences of the Board in the study and enforcement of the existing law.

1. *Inspection Force.*

Since the organization of this department, it has been recognized that the inspection force was inadequate for the work which was entrusted to it. It is estimated that there are about 50,000 industrial establishments in the State and but 24 inspectors to cover the work. In order that all the people of the State may receive the benefit of the present law, it is respectfully recommended that the law be changed so as to permit the appointment of 10 additional inspectors.

2. *Receptacles for Expectoration.*

One of the health dangers which is called to the attention of the Board is the provision regarding suitable receptacles for expectoration. The law relative to this matter divides the responsibility for unwholesome conditions, placing upon the State Board of Labor and Industries the duty of enforcing the law, but upon the local board of health the duty of the approval of such receptacles. The law should be changed as suggested, or the enforcement of the law should be left to the local authorities, which again would add to the division of responsibility.

OPINIONS OF THE ATTORNEY-GENERAL.

During the past year the Board has called upon the Attorney-General of the Commonwealth for opinions concerning the interpretation of certain statutes enforced under its direction.

A question arose regarding the employment of public employees and the interpretation of the word "regularly" in section 1, chapter 217 of the Acts of 1914, and the following opinion was received, which did a great deal to settle a long-standing controversy:—

Boston, Oct. 31, 1917.

State Board of Labor and Industries, 1 Beacon Street, Boston, Mass.

GENTLEMEN:—I am in receipt of your letter of the 22d inst., requesting my opinion as to the interpretation of the word "regularly" as it is used in St. 1914, c. 217, § 1. That section reads as follows:—

All persons classified as laborers, or doing the work of laborers, and regularly employed by cities or towns for more than one year, shall be granted a vacation of not less than two weeks during each year of their employment, without loss of pay.

You state that certain cities and towns have arbitrarily fixed the number of days which shall constitute regular employment under this act; others leave it to the discretion of the employing authorities, while still others have prepared a list of those employed all the time and hold that these only are entitled to vacation.

While it is difficult in a matter of this kind to prescribe a general rule which will apply to all cases which may hereafter arise, it is my opinion that the word "regularly" in this act is used in the sense of continuously as distinguished from intermittently or at intervals. This does not mean, however, that a person must be actually at work during all the working days of the year. The fact that he was absent from his work on account of sickness or other cause which did not constitute a termination of his employment would not prevent him from being regularly employed within the meaning of this act. On the other hand, if his employment had terminated during the year this fact would prevent him from being

regularly employed, although he was re-employed by the city or town a short time afterwards. The test, in my judgment, is whether or not the employment of the man has terminated within the year so as to make it necessary for him to be re-employed before he starts to work again. If it has been so terminated he cannot be said to be regularly employed for more than one year within the meaning of the act above quoted. If, however, it is not so terminated and the nature of his employment is such as to require his services for the usual number of hours a day throughout the year, he is, in my opinion, regularly employed within the meaning of this act.

Yours truly,

HENRY C. ATTWILL,
Attorney-General.

Conditions existing at the beginning of the war made it necessary to determine the exact meaning of the terms "extraordinary emergency" and "extraordinary public requirement" as found in chapter 758 of the Acts of 1913, and so an opinion was sought on the proper interpretation, and the following decision was obtained: —

Boston, April 16, 1917.

State Board of Labor and Industries, 1 Beacon Street, Boston, Mass.

GENTLEMEN: — I beg to acknowledge your communication of the 13th inst. in which you request my opinion on the following question: —

Shall a contractor, furnishing war materials under contract or requirement of the United States government, be exempt from the requirements relating to the hours of labor of women and children, contained in chapter 758 of the Acts of 1913, or shall the State Board of Labor and Industries, in each case called to its attention, determine what is "extraordinary emergency" or "extraordinary public requirement" under the law to which we have referred.

It is to be noted at the outset that your question does not involve a situation where the United States has required the employer to do the work. In such a situation I would unhesitatingly advise you that the laws of this Commonwealth would not apply. When a state of war exists, no law of the Commonwealth can interfere or control the necessities or exigencies of the Federal government in prosecuting the war. Your question involves only voluntary contracts made with the United States for war supplies.

St. 1913, c. 758, provides, in part, that —

Every employer engaged in furnishing public service or in any other kind of business in respect to which the state board of labor and industries shall find that public necessity or convenience requires the employment of children under the age of eighteen or women by shifts during different periods or parts of the day, shall post in a conspicuous place in every room in which such persons are employed a printed notice stating separately the hours of employment for each shift or tour of duty and the amount of time allowed for meals.

It further provides that —

In cases of extraordinary emergency as defined by section one of chapter four hundred and ninety-four of the acts of the year nineteen hundred and eleven or extraordinary public requirement, the provisions of this act shall not apply to employers engaged in public service or in other kinds of business in which shifts may be required as hereinbefore stated; but in such cases no employment in excess of the hours authorized under the provisions of this act shall be considered as legalized until a written report of the day and hour of its occurrence and its duration is sent to the state board of labor and industries.

Cases of extraordinary emergency, as defined by St. 1911, c. 494, § 1, as amended by Gen. St. 1916, c. 240, are the following: danger to property, life, public safety or public health.

I think it plain that employers engaged in furnishing war materials to the United States government, under contracts, are employers engaged in public service, within the meaning of the act. It follows that in cases of extraordinary emergency or extraordinary public requirement the provisions of St. 1913, c. 758, do not apply to such employers.

It is to be presumed that the United States government, at the time of making such contracts, has knowledge of the laws of the Commonwealth and the capacity of the employers' factories, and that it will not enter into contracts with employers in this Commonwealth requiring the operation of their factories contrary to the provisions of our laws unless an extraordinary emergency or public requirement necessitates it. It follows that if, in order to fulfill the contracts, it is necessary to operate the factories outside the provisions of said chapter 758 an extraordinary emergency or public requirement exists. This emergency or requirement exists, however, only when the necessity of so operating the factory is required to fulfill the government's contracts. In other words, it does not arise unless the work for the government, independent of other work, requires the operation of the factory in a manner contrary to the provisions of said chapter.

Accordingly, each case brought to your attention will depend upon its own facts, and in the first instance, applying the views above indicated, it is for your Board to determine whether or not an extraordinary emergency or public requirement exists.

Instances may arise where the operation of the factory in a manner outside of the provisions of chapter 758 is requested by officials of the United States government, although the work of the factory is not devoted exclusively to the manufacture of war materials.

In such instances, I am of the opinion that your Board should assume that an extraordinary emergency or extraordinary public requirement exists.

Very truly yours,

HENRY C. ATTWILL,
Attorney-General.

BOARD RULINGS.

The request of the Wm. Underwood Company, 52 Fulton Street, Boston, that the business of canning certain food by said company be declared seasonal. Hearing on May 15, 1917. Voted to deny the request.

May 3, 1917, the request of the confectionery manufacturers for a shorter lunch period. Hearing May 8, 1917, Augustus Andrews, Esq., acting as counsel for the confectionery manufacturers, who were also represented by Mr. Walter H. Belcher and Mr. F. R. Hayward. Voted to deny the request.

Tate Manufacturing Company, 48 Hanover Street, Boston, petition for 30-minute lunch period instead of 45 minutes, as required by law. After hearing, May 8, 1917, it was voted to deny the request.

July 31, 1917, petition from the Emerson Shoe Company, Rockland, asking for a ruling as to whether a stapling machine in their lasting department was a hazardous machine. After investigation, it was voted that the stapling machine used by that company was not, in the opinion of the Board, a hazardous machine under the statute.

Petition from the Gillette Safety Razor Company, South Boston, Aug. 7, 1917, asking that the establishment be included on the list of those not required to give a 45-minute lunch period. Voted that this request be not granted.

Letter from the Logan-Johnson Company, State Street, Boston, asking for a 30-minute lunch period instead of 45 minutes as required by law. After a hearing and investigation, it was voted to deny the request of the Logan-Johnson Company.

Petition from the L. Q. White Shoe Company, Bridgewater, asking that the noon lunch period of their establishment be made 30 minutes rather than 45. Voted that the Commissioner be instructed to reply that exemptions to the lunch period law must be by class and not by individual requests.

Sept. 18, 1917, petition from B. E. Grant, a contractor of Boston, requesting that the work being done by him on Beacon Street be adjudged one of extraordinary emergency because of the danger to property by fire. It was voted to declare the work on Beacon Street one of extraordinary emergency.

Oct. 23, 1917, petition from the L. A. W. Novelty Company of Springfield requesting that the business of this firm be declared seasonal. It was voted to deny the request.

Petition from the Woodbury Shoe Company at Beverly asking if their power stitching machine, as used in the stitching room of its factory, would be considered a hazardous machine which would prevent the employment of girls between fourteen and sixteen years of age in the operation of the same. It was voted that in the opinion of the Board this machine is not hazardous.

CONCLUSION.

The State Board of Labor and Industries begs to acknowledge, with a deep sense of gratitude, the assistance which it has received both from the employer and the employee, and to express the opinion that notwithstanding all the misfortune which has come as a result of the war, the relations of the employee to the employer were never closer than at present, and that as a result the work of the State Board of Labor and Industries of the future will become more and more that of counselor, advising and encouraging both parties in the effort for better industrial conditions in a great industrial Commonwealth.

Respectfully submitted,

STATE BOARD OF LABOR AND INDUSTRIES,

ALFRED W. DONOVAN.

JOHN F. TOBIN.

ALFRED H. QUESSY, M.D.

SAMUEL ROSS.

Mrs. DAVIS R. DEWEY.

REPORT OF THE COMMISSIONER OF LABOR.

To the State Board of Labor and Industries.

In accordance with your instructions I have the honor to submit my fourth annual report as Commissioner of Labor.

The year 1917 marked an era of world events unequalled in any period of the world's history. Industrial, economic and social precedents were swept from the program of world work as if they were built upon the sand, and the most radical changes were accepted as readily as though the standards of the past cost nothing and must be replaced to meet the ever changing conditions of the present, while all problems of the future, by this plan, must be left to the caprice of fortune, or at least to those who could gain nothing by consulting the experience of the present.

Massachusetts is a great industrial Commonwealth and necessarily becomes an important part of the great struggle which is taking place. Industrial changes such as had never been contemplated, let alone provided for, were upon us; and we found ourselves taking part in a great world drama with some uncertainty as to when, how and where the last act should be presented. The final outcome was never in doubt, but the details were missing.

This department was organized to meet unwholesome industrial conditions and conquer them, and therefore we are obliged to answer for those principles which underlie the work intrusted to us. It is a pleasure, therefore, to be in a position to report that, notwithstanding all the discouragements of the past year, real progress has been made and that industrial workers are today protected better than ever before.

Man power, which might better be called human power, has come to be recognized at a new value, and every one appreciates more than ever the real value of a real human being as the greatest asset of any nation. The burdens of this department

have been lessened by the fact that employers of labor have recognized the truth of this statement and have led the way to improved working conditions.

CHILD LABOR.

The enactment of the Federal Child Labor Law was a distinct advance in the correction of child labor evils. It was interesting to observe how closely the Federal law conformed in most of its conditions with the Massachusetts Child Labor Law, and it is a source of genuine satisfaction to have the Commissioner delegated as the representative of the National Children's Bureau of the United States Department of Labor, for the purpose of enforcing this law in Massachusetts. It is understood that the law will be contested in certain quarters, but such a contest should have but one result in Massachusetts, and that to make us appreciate more fully the advantage which comes to our children by the enforcement of this beneficent law.

The school authorities in every section of the State report an increase in the number leaving school and entering industrial establishments. The number of employment certificates issued for the year 1917 was 299,220, an increase of 25,251 over 1916. In this connection, the suggestion made in the last report of the Commissioner should be renewed, and more care should be exercised in the issuance of employment certificates. It has been urged that school superintendents have so many and varied duties that in many cases they have not sufficient time in which to do this work systematically and carefully. So much depends upon the proper discharge of this duty that it is doubtful if any other should take precedence over it.

The inflated wages now paid to children are tempting many to quit school long before it is desirable. Surely the protection afforded to children under this law should be extended, and in no better way will children receive this protection than by the strict enforcement of the law which surrounds the issuance of educational and employment certificates.

The investigations conducted by this department reveal the fact that, notwithstanding all the care exercised by superintendents, some employers allow children to pass from one occu-

pation to another after obtaining a certificate authorizing their employment in one branch exclusively. Serious accidents have resulted because of this practice, and prosecutions have been brought in an attempt to put an end to it. This experience emphasizes the duty of employers in this very important matter.

WOMEN IN INDUSTRY.

Encouraged by decisions of the courts of many States, Massachusetts has protected its women workers by several statutes which affect the hours of labor, etc., by women. With thousands of women now entering industry, engaging in occupations heretofore designed exclusively for men, it is an open question whether the future mothers of this nation have been sufficiently protected. Time alone will answer this question, but the strict enforcement of existing law is brought to us as never before as a duty not only to the individual worker but as well to the great Commonwealth, whose greatest care is the welfare of women in industry.

It is interesting to observe that of the 13,102 orders issued by this department during the past year, nearly 50 per cent. are those relating directly to the employment of women and children.

INSPECTION WORK.

During the year there were 29,109 inspections and 9,993 re-inspections, making a total of 39,102. There were 13,102 orders issued to correct conditions existing contrary to law at the time of inspection. Of the total number of orders issued, 9,998 were complied with. The remaining number were filed, because of change in conditions, or orders pending awaiting the statute limitations.

There were 2,170 applications received for homework licenses, and 2,064 licenses were granted; 4,337 reports were received from boards of health, and 30 licenses were revoked because of unhealthy conditions in the home. The home of each applicant is a subject for inspection before the license is granted, which increases by a large per cent. the work of inspection.

SUMMARY OF ORDERS ISSUED.

Labor: —

Limit of hours of labor,	979
Posting notices and filing lists,	2,874
Sunday employment,	276
Procuring and returning school certificates,	2,335
Miscellaneous,	5
	<hr/>
Total labor,	6,469

Industrial health: —

Ventilation, humidity, dust removal,	741
Toilet and washing facilities,	3,268
Medical and surgical chests,	1,035
Exclusion of minors from dangerous trades,	120
Miscellaneous,	255
	<hr/>
Total industrial health,	5,419

Industrial safety: —

Safeguarding dangerous machinery,	1,016
Safeguarding dangerous openings,	13
Egress,	13
Miscellaneous,	172
	<hr/>
Total industrial safety,	1,214
	<hr/>
Grand total of orders issued,	13,102

Our inspection force has been somewhat disorganized by war conditions, constant changes taking place and consequent interruption of regular work. It is a source of pride, however, to note the enlistment in the United States service of a large proportion of our inspection force, and as a token of honor and respect to those who have gone we append the names of the following inspectors who have entered the United States service: —

Mr. Albert W. Buck.
 Mr. William Newsome Eichorn.
 Dr. James H. Malonson.
 Dr. Eugene J. McCarthy.
 Mr. John J. McDonough.

Mr. Carl T. Pomeroy.
 Mr. John A. Scanga.
 Mr. Samuel M. Schmidt.
 Mr. Albert J. Tonry.

ENFORCEMENT BY PROSECUTION.

The law which placed on this department the enforcement of laws relating to labor and the employment thereof, including the inspection of buildings used for industrial purposes, the inspection and licensing of the workers therein and all other industrial employees within the Commonwealth, the enforcement of the laws relating to the employment of women and minors, is one that requires tact, judgment and wise discretion.

In the task committed to us we have always contended that our success could not be measured by the number of cases brought into court. As a rule, the employers are not criminals; they are men who have been trained in a certain business under conditions which seemed to them fairly good, the traditions of the business alone being considered. In some cases they have objected to the enactment of the laws governing conditions under which they are obliged to do business. Our problem in this situation has been interpreted to be one where we might, in the true spirit of co-operation, make such men realize that the suggestions made are intended for the real benefit of the manufacturers to whom they are made as well as to the employee for whom they are intended. It is an educational process, and must necessarily take time, but the reasons which prompt this attitude on the part of the community will finally appeal to right-thinking men when the old doctrine of "force" will be forgotten, or remembered only as a memory of man's awkward manner of dealing with his fellows.

There are men, however, who not only for their own good, but as well for an example to their less-informed neighbors, must be prosecuted. Where the line shall be drawn must be left to the wise judgment of some discerning authority, and the State has given to this department the duty of deciding.

The following summary of the work of our legal department is submitted: —

Prosecutions,	228
Verdicts: —	
Guilty,	187
Not guilty,	13
Cases dismissed,	28
Total,	228

Character of offence:—	Counts.
Nonpayment of wages,	131
Overtime employment in industrial establishments,	23
Certificates not on file,	28
Time notice not posted,	29
Employing women and minors at time not stated on time notice,	19
Strike on, not stated in advertisement,	12
Public exhibition of children under fifteen,	1
Illiterate minor not attending night school,	1
Employing minor under fourteen in industrial establishment,	14
Employing minor under fourteen after 6.00 P.M.,	2
Employing minor under sixteen before 6.30 A.M.,	1
Employing minor under sixteen after 6.00 P.M.	27
Employing minor under sixteen more than eight hours per day,	12
Employing minor under sixteen on elevator,	3
Employing minor under sixteen in bowling alley,	30
Employing minor under sixteen on dangerous machinery,	1
Employing minor under twenty-one after 10.00 P.M.,	5
Parent permitting minor under fourteen to be employed in a factory,	3
Parent making false statement of age,	1
Failure to keep list of minors posted,	1
Failure to comply with rules and regulations <i>in re</i> painting business,	3
Failure to provide medical chest,	1
Failure to comply with toilet rules and regulations,	6
Failure to comply with Joint Board rules,	1
Failure to keep register of wearing apparel home workers,	1
Giving home work on wearing apparel to unlicensed people,	2
Requiring or permitting employee to work on day of rest,	2
Interfering with inspector,	1
Fraudulent advertising,	1
Outside door locked during working hours,	1
Total counts included in 228 cases,	363

COMPLAINTS.

The offices of the State Board of Labor and Industries are always open to complaints, even though such complaints are anonymous. The policy of the department, so far as it is proper to have a policy, is to have the workers know that there is at least one place where every legitimate complaint can be made without fear of detection and consequent punishment of any kind.

There were 3,037 complaints received during the past year, the following summary showing the details:—

Complaints made by the Public concerning Violations of Law.

Overtime employment,	383
Nonpayment of wages,	1,832
Health and sanitation (including complaints in re lifting of heavy weights by women, no seats provided for women, inadequate or no blower systems, condition of toilets),	242
One day of rest in seven,	51
Preference of citizens,	11
Prevailing rate of wage,	3
No time notice posted,	14
Employing minors without certificate,	120
Employment of minors under fourteen,	113
Labor, general (including intimidation of employees, fines, employment on legal holiday, etc.),	93
Violation of painters' rules,	13
Violation of eight-hour law,	47
Advertising for help during strike without so stating,	42
Safeguarding machinery,	8
Public exhibition of minor,	1
Miscellaneous,	64
Total,	3,037

It is interesting to observe that 1,832 complaints were received during the year under the nonpayment of wages law, and that after such complaint was entered there was received by complainants, as the result of our investigation, \$11,409.30.

SPECIAL INVESTIGATIONS.

In addition to the regular inspection work of the department, several special investigations have been made.

Miss Mary C. Wiggin investigated the munitions factories.

Mr. Michael F. O'Brien and Mr. Peter Cairns made an investigation of the work of public employees.

Dr. Eugene J. McCarthy and Mr. William Newsome Eichorn, inspectors, made a co-operative investigation of the community health problem work at South Framingham.

Inspector John J. McDonough investigated the health hazard connected with the manufacture of box toes for shoes.

Messrs. James Goodwin, Alexander F. Hastie, William H.

Higgins and Ignatius McNulty made an investigation of building operation rules and their observance.

Inspector Alfred W. Kimball made an investigation of the fish industry.

ACCIDENT PREVENTION.

Under the law entrusting to this Board the accident prevention work of the Commonwealth, an organization has been perfected for the investigation and study of industrial safety.

The intimate relation existing between the inspection work of this department and accident prevention is more manifest each day, for under the present system we are obtaining from the of the Industrial Accident Board reports of nearly 600 accidents a day. From these a careful selection of typical cases is made and investigations follow. The value of these investigations contributes to the effectiveness of our regular inspection work, for in no way is the efficiency of our efforts made more apparent than by a study of the result of inefficient methods.

There were 1,016 orders for safeguarding machinery issued during the year, and as a result of our present method we may hope for a large decrease in the industrial accidents of this State.

The entrance of large numbers of female employees and those unaccustomed to their present employment will bring new problems in accident prevention, but proper organization of employers and employees within the establishment and the directing hand of some central authority will bring about the solution of this problem.

WAR EMERGENCY.

Following the outbreak of the war in April, 1917, the Legislature passed "An Act to provide for the better defence of the commonwealth in time of war" (Chapter 342, General Acts). There was a great deal of discussion relative to the place which those who toil might occupy in the scheme covered by this act, and after many conferences with the leaders of organized labor and other interested parties, section 24 of this act was prepared as a safeguard to all the interests involved.

The State Board of Labor and Industries was very fortunate in securing for membership on the War Emergency Industrial

Commission provided for in this act representative persons, who undertook the work entrusted to them. The report of this commission is attached hereto, and it is only necessary to say at this time that the experiment which Massachusetts tried in the direction indicated by this section of the act has been productive of very good results.

INDUSTRIAL DEVELOPMENT DIVISION.

The Industrial Development Division has done a great deal during the year 1917 to assist the manufacturers of the State in securing orders from reliable concerns in foreign countries.

During the year the number of circulars sent to merchants, dealers and manufacturers in South America reached 2,500. The response to this work has been most satisfactory. Over 7,000 inquiries were referred to our manufacturers for their consideration. Assistance has been rendered them in getting more information on the inquiry, and many times in obtaining a complete order for their goods.

The department has co-operated with several manufacturers, who had never undertaken overseas commerce, to start the proper machinery for a successful marketing of their goods abroad.

To make the work of this division well known to the manufacturers of the Commonwealth, we sent a special exhibit to the space secured by the Board at the Springfield Industrial Exposition in June.

Our translation service has continued to occupy a prominent place among the features of this department's service, 247 translations being made during the year.

From time to time during the year, the department has conveyed interesting information to our manufacturers by means of circular letters. Nearly 2,500 of these were sent out during the year.

A table of "Trade Opportunities" sent out by the department during the last year follows: —

	Number.	Concerns.
"Trade Opportunities" sent to Massachusetts manufacturers directly interested.	197	-
Number of concerns to whom "Trade Opportunities" were sent.	-	7,729
Character of opportunities: —		
Domestic,	12	333
Foreign,	187	7,396
Algiers,	1	19
Argentina,	11	670
Australia,	3	171
Bolivia,	1	10
Brasil,	16	886
Colon,	1	39
Cebu,	29	965
Colombia,	25	1,089
Costa Rica,	1	32
Cuba,	4	264
Dominican Republic,	2	16
France,	10	391
Greece,	1	48
Guatemala,	3	42
Holland,	1	38
Honduras,	1	1
India,	8	432
Italy,	2	27
Japan,	3	26
Java,	2	88
Mexico,	29	821
Norway,	1	104
Peru,	9	571
Portugal,	1	47
Rhodesia,	1	10
Russia,	2	198
Scotland,	3	54
South America,	1	3
Spain,	10	111
Turkey,	1	3
Uruguay,	4	220

CONCLUSION.

The reports of the two Deputy Commissioners follow, which, together with the report of the Commissioner, are designed to state briefly the activities which have engaged our attention during the past year. In the broad field covered by this department, it is impossible to convey in a report of this kind any adequate idea of the many problems which come daily to this office. They must be inferred from the statements submitted.

For the privilege of presenting this statement and for the many courtesies extended by the Board and its assistants during the year, I take this occasion to express my sincere thanks.

Respectfully submitted,

EDWIN MULREADY,
Commissioner of Labor.

REPORT OF THE DEPUTY COMMISSIONER OF LABOR (LABOR).

TO MR. EDWIN MULREADY, *Commissioner of Labor, 1 Beacon Street, Boston, Mass.*

I have the honor to submit herewith a report of my work as Deputy Commissioner of Labor for the year ending Dec. 31,

through the medium of legislative enactment, Massachusetts seeks to conserve the physical well-being of its wage earners.

Conservation of the productive power of labor is no longer a matter of indifference. It is now acknowledged to be a necessity of national importance. The permanent welfare of an industrial State can only be maintained by an adequate supply of skilled labor, the basis of which is an active, virile, vigorous, working population.

The laws designed to protect the women and minors engaged in the industries of the Commonwealth have a greater significance in view of present world conditions. The enforcement of these statutes is essential to the highest industrial development of the State and the material prosperity of its people.

The work of our department in maintaining a high standard of law enforcement in the matter of women and minors is manifested by the fact that in nearly 10,000 industrial and mercantile establishments, where violations of the law were discovered, 6,188 orders designed to protect these classes of employees in industry were issued during the year 1917. The interest of the public in the enforcement of the laws pertaining to the illegal employment of women and minors is attested by the fact that 630 complaints were filed with the department during the year. Immediate attention in each instance was given by the inspection department to the investigation of these complaints, and prompt compliance with the statutes insisted upon.

Efficient service has been rendered by the inspectors in the enforcement of the laws designed to protect the child from influences harmful to its proper development. In the course of this work they are called upon frequently to investigate certain establishments during all hours of the night. A few instances might be quoted to describe their activity in this respect and at the same time throw an interesting light on an important feature of the work the department is engaged in.

Children nine years of age were found working in bowling alleys at 11 o'clock at night in one of the large industrial centers of the Commonwealth. A young girl, fourteen years of age, together with her brother who is fifteen, was discovered driving a baker's wagon and making deliveries to customers before 4 o'clock in the morning in one of the largest communities in Massachusetts.

In a country district boys eleven and twelve years of age were seen driving an ice wagon and carrying their wares into the homes of patrons at 10.30 o'clock at night.

A school principal in a large city discovered that several boys in the freshman class were unable to do their school work properly. Upon investigation he learned that the boys were employed late at night, and he notified this department. Inspectors took up the work at once and found boys fourteen and fifteen years of age working in a slaughterhouse at 2 o'clock in the morning.

The cases cited might be multiplied many times, but are sufficient not only to indicate the character of the work done by our inspectors, but they serve to emphasize the need of constant vigilance in the enforcement of the child labor laws.

NONPAYMENT OF WAGES.

The weekly payment of wages law in Massachusetts is designed not only to provide the worker with the payment of his wages at intervals fixed by the statutes, but to assure the payment of his wages in full.

Very rarely is it necessary to invoke its aid against the well-established business concerns of the Commonwealth. There is, however, a class of persons who attempt to engage in certain

lines of industry and who, because of their inefficiency in business methods, frequently violate this law. Lack of proper business training and inability to figure costs accurately in many cases cause this class of employers to fail not only in paying wages weekly, but in paying the employees' wages in full. This is particularly true of many subcontractors engaged in the building trades, and many non-English speaking workmen suffer as a result.

This matter becomes a serious one when the wages are needed to support a family and keep the home in ordinary comfort.

Invariably the amounts at issue are comparatively small, and this fact frequently discourages the workmen from securing the assistance of legal counsel. Upon making inquiry their attention is directed to this department and a complaint is then

The extent of this work may be realized when it is said that 1,832 complaints for nonpayment of wages were filed with the department during the past year.

During this period employers paid more than \$11,000 to their workmen when complaint was brought against them for nonpayment of wages.

Domestics suffer much because the weekly payment of wage law has no application in their line of work. Many complaints from this source are made to the department, and in nearly every instance by persons who are dependent upon the small amount they earn. Very many of these workers are the victims of much injustice, and endure privation because there is no law that can be enforced for them without incidental expense. Included in their number are found mothers struggling to provide the necessities of life for small children and women who have been obliged to take up domestic work as a means of their support.

INDUSTRIAL SAFETY.

I respectfully direct your attention to the work accomplished for industrial safety during the past year. Because of the magnitude of the problem and its importance to the State, the protection of the wage earner from dangerous conditions of employment is a proper function of government.

During the year ending Dec. 31, 1917, 1,214 orders were

issued dealing with industrial hazards to workmen. The significance of these figures can be realized only when it is understood that in the large manufacturing establishment a single order usually means the removal of hundreds of dangerous hazards from the environment of the workers engaged therein. These orders applied specifically to establishments where instances of unguarded machinery, unprotected openings, traversing machinery, defective trap doors, lack of communication with engineer's room, and other serious industrial conditions of employment were found. During the year 1916, 702 orders in connection with the same work were issued by this department.

The work of our inspection force in this respect marks a distinct advance over similar efforts in previous years. The power of the department to reach dangerous and unsafe conditions of employment in certain industries has been extended by the adoption of rules providing for the establishment of safe conditions of employment therein. Substantial progress has been made for industrial safety through the system of accident investigation now being carried on. The inspectors are brought into daily contact with the hazards of industry and have opportunity to analyze the causation of industrial injury. The department is thus enabled to issue orders for the removal of dangerous machine hazards and other prolific sources of physical injuries to the operatives in the mills and factories of Massachusetts. Progressive employers respond to the requirements of these orders when their significance and purpose are understood, and thus the most efficacious work in preventing workmen from exposure to occupational injury is accomplished.

The congestion of population in the manufacturing centers of the State has brought together the workman and the machine in ever-increasing numbers. The continual invention of machinery and machine processes has multiplied the number of industrial hazards.

Greater efficiency in the work of reporting accidents has taken place in the past few years, and the problem of industrial injury is now seen in its true proportions.

For instance, during the year 1912 it was estimated that 600,000 workmen came within the scope of laws that would make possible the reporting of industrial accidents.

Four years later, or during the year 1916, it was estimated that this number had increased to more than 1,000,000. Under such circumstances, it was inevitable that a higher accident rate would appear manifest.

Conditions arising out of the war in Europe, both before and since the entry of the United States, have increased the need for industrial safety in Massachusetts, as it has in many other industrial States. The expansion of certain manufacturing establishments, to meet the large war orders from the Allied governments and then afterwards from the United States, has had the result of increasing the number of inexperienced workmen employed in the industries engaged in the manufacture of certain supplies.

Under the pressure of these conditions, attention to production has been made first in importance, and the establishment of safety conditions has been given secondary consideration. An increased accident rate has taken place as a result of these conditions. This experience is not restricted to Massachusetts alone, for in the State of Wisconsin the number of occupational injuries has increased 80 per cent. in 1916-17 over 1914-15, where the increase in the number of men employed appears to have been in the vicinity of 20 per cent., leaving a substantial increase in the frequency of industrial accidents.

The economic loss to the State, the harmful effect upon the home and family, the enormous expense upon industry, — all resulting from the effects of industrial accidents, — constitute here, as elsewhere, a serious problem.

Even with an inspection force inadequate in numbers to treat effectively with this work, substantial progress has been made in Massachusetts. In addition to the safeguarding of machinery and to the establishment of safety conditions in industry, educational work by employers and workmen co-operating together is the most effective means of accomplishing results.

Our inspection force has been doing the most practical work of this kind by introducing into the industrial establishments of the Commonwealth the principles contained in the "Safety Rules and Regulations and Machinery Standards."¹ Although restricted by our limitations, we now have a constructive sys-

¹ Industrial Bulletin No. 9.

tem of accident prevention work. The extension of this work into a greater area of the industrial field can be brought about only by increased facilities.

HOURS FOR PUBLIC EMPLOYEES.

Forty-seven complaints were made to the department during the year alleging violations of the eight-hour law on public works. These complaints are restricted entirely to the summer months, and pertain to cities and towns engaged in the repair or construction of highways or other municipal improvements and subcontractors engaged in their employ.

The time given by our inspectors to the work of investigating complaints deprives the department of their services, while so engaged, in the inspection of mercantile and manufacturing establishments. This becomes a serious problem in view of our limited inspection force, the proper direction of which should be toward the accomplishment of the most efficient results. In nearly every case where the eight-hour law was being violated, the defence was made that an emergency justified the course taken.

The investigation which invariably followed the complaints revealed the fact that in very many instances no emergency within the meaning of the statute existed. "Danger to property, life, public safety or public health only shall be considered cases of extraordinary emergency," and in such cases only can the services of laborers, workmen and mechanics on public works be permitted to extend over eight hours in any calendar day or forty-eight hours in any one week. In every State in the Union where emergencies are not clearly defined, there exists the same difficulty with regard to enforcement of the eight-hour law on public works.

The expense of investigating complaints which have their basis in an incorrect interpretation of the law could be saved if a clearer definition of "emergencies" were provided by the statutes.

SUMMARIES.

Having called your attention to a few of the many important issues connected with the work of the Deputy Commissioner of Labor, I now present a summary of the orders issued relative to the hours of labor.

The total number of such orders issued for the year 1917 was 6,469, and were specifically as follows: —

Limit of hours of labor,	979
Posted notices and filing lists,	2,874
Sunday employment,	276
Procuring and returning school certificates,	2,335
Miscellaneous,	5
Total,	6,469

The following is a summary of orders issued on industrial safety: —

Guarding dangerous machinery,	1,016
Guarding dangerous openings,	13
Communication with engineer's room,	13
Miscellaneous,	113
Total,	59
Total,	1,214

The total number of complaints having to do with violations of labor laws for the year 1917 was 2,795, and were as follows: —

Violations of painters' rules,	13
Overtime employment,	383
Nonpayment of wages,	1,832
Violation of eight-hour law,	47
Advertising for help without stating "strike on,"	42
One day's rest in seven,	51
Preference to citizens,	11
Prevailing rate of wages,	3
Time notice not posted,	14
Employing minors without certificates,	120
Employing minors under fourteen years,	113
Labor in general, including intimidation of employees, employment on legal holidays, etc.,	93
Safeguarding machinery,	8
Public exhibition of minors,	1
Miscellaneous,	64
Total,	2,795

CONCLUSION.

The activities of each day cannot find adequate expression in an annual report. Innumerable requests for information from the manufacturing establishments of the Commonwealth, supervising the work of the inspection force and the examination of their reports, directing the investigation of complaints and holding conferences with employers and workmen brought in contact with the department are ordinary items of the daily work. Since the beginning of my activity with the department in the last days of the month of May, the single aim has been to add to its strength and efficiency. To serve the Commonwealth in a department established to conserve its industrial development and the welfare of its wage earners has proven to be a call to the highest type of useful service.

Respectfully submitted,

JOHN P. MEADE,
Deputy Commissioner of Labor.

REPORT OF THE DEPUTY COMMISSIONER OF LABOR (MEDICAL).

TO MR. EDWIN MULREADY, *Commissioner of Labor, 1 Beacon Street,
Boston, Mass.*

I respectfully present my annual report as Deputy Commissioner of Labor (Medical) in investigating conditions in industry affecting the health of employees and the carrying out of measures for the prevention of occupational disease and such other duties as have been assigned to me.

The work of the department has progressed satisfactorily during the year, notwithstanding many changes in our inspection force because of enlistments into army service. In the supervision of working conditions affecting the health in the industries, the work has exceeded that of previous years. This is well illustrated in the number of orders issued for bettering ventilation, lighting, dust removal, toilet and washing facilities, as well as orders for providing seats for women, etc., viz.: —

	1916.	1917.
Orders for better ventilation,	323	518
Orders for better lighting,	9	32
Orders for dust removal,	93	220
Orders for seats for women,	66	115
Orders for toilet and washing facilities,	3,344	3,268
Orders for medical and surgical kits,	1,078	1,035
Orders for regulating humidity (textile),	36	26
Orders for regulating temperature (textile),	10	3
Orders for pure drinking water,	94	77
Orders prohibiting minors' employment on dangerous machinery,	90	120
Total,	5,143	5,414

In addition to the foregoing summary, there were 213 cases of occupational diseases investigated, against 189 cases for the year 1916. There were 818 accidents investigated from reports furnished by daily news "clippings." The further study of these various activities is given below.

TOILET AND WASHING FACILITIES.

The importance of these factors in the prevention of industrial ill health looms into prominence with the entrance of women workers into industrial life to a greater extent than in pre-war times. The State law provides that toilet and washing facilities shall be provided in all establishments used for industrial purposes, also that these accommodations shall be convenient, and shall be separate for each sex and plainly so designated. Rules and regulations¹ have been adopted, guaranteeing to each sex a specified number of toilet and washing facilities, based upon the number of women and men employed. These rules provide for the location and construction of such facilities for women workers, so that privacy is assured. A great number of manufacturers and employers throughout the State have conformed in every way to those laws, rules and regulations. Many owners of property submit plans of construction to this department for approval before proceeding with the work of installing accommodations.

The importance of enforcing these regulations as a health measure cannot be overestimated. Nearly all of the occupational diseases are contracted from eating with hands soiled with poisonous substances used in the processes of manufacture, *e.g.*, lead, arsenic, mercury, benzine compounds, etc. The mass of ill health among industrial workers arising out of anæmia and malnutrition has its beginning in the working conditions of overheated, dusty, dry atmospheres. Nature demands a greater supply of water for the body of persons working in such an atmosphere, in order to compensate for the great loss of moisture by evaporation from the skin. If this supply is not provided, the tissues and organs of the body are called upon to furnish the requirements demanded by the dry atmosphere. This leads

¹ "Rules and Regulations for Toilets in Industrial Establishments."

to an accumulation within the body of waste material which is absorbed, and which causes a self-poisoning that shows itself in headaches, nausea, indigestion, neuralgia, liver diseases and rheumatism; in persons of middle and later life, kidney disease may result. All persons working under such conditions are more easily fatigued and liable to accidents, and are the first to succumb to infection from pneumonia and other infectious diseases.

Several complaints have been investigated this year that justify the conclusion that in some establishments the toilet arrangements were disgraceful. Young girls and women were subjected to conditions that were indecent and vulgar. The entrance of women into industries formerly carried on almost exclusively by male workers makes this problem one of primary importance; in many situations it amounts to a moral problem.

SEATS FOR WOMEN.

The number of orders requiring that women or children employed in manufacturing, mechanical or mercantile establishments shall be provided with suitable seats in accordance with the provisions of the State law has been almost doubled this year. This is due in part to the increased number of female workers in many new lines of activity, but it shows also a more general recognition by manufacturers that many occupations of women can be properly and efficiently performed sitting. The influence upon the health of women, especially young, rapidly growing girls fifteen to eighteen years of age, by an occupation necessitating hours of standing daily, is so self-evident that many employers readily supply seats for their female operatives when the matter is called to their attention. This rule is practically uniform in the mercantile establishments through the State. The objection to its adoption has been principally in industries that have been carried on for many years without any provisions for seats. Many manufacturers have demonstrated, however, that the output has been increased materially in departments where women are employed when provisions have been made for the lessening of fatigue by the use of seats, either continuously or intermittently during the day. In some establishments where seats had been provided, there was complaint

that the seat did not fit the worker, and that no provisions were made for foot rests for high stools. This is a matter of detail that can be adjusted readily in any line of work, whether bench or machine.

MINORS WORKING ON DANGEROUS MACHINERY.

The demand for overtime work on the part of men and women has resulted in the employment of minors on machinery considered dangerous and extra hazardous. Several of the accidents investigated have brought out the necessity for safeguarding minors against this source of accident. There were 120 orders issued against such employment in 1917, compared with 90 orders issued for the same purpose in 1916.

SANITATION.

The problems of ventilation and of dust removal have been studied from many angles in different industries during the year. In many of the new lines of war industries the overcrowding and the twenty-four-hour continuous employment make ventilation of the workshop most essential. In several of the chemical industries the fumes, gases and dust constitute a real menace to life and have resulted in deaths as well as ill health. The printed suggestions furnished by the department for the prevention of poisoning by benzine derivatives¹ and the pamphlet on dust² have been widely circulated throughout the various industries and have been adopted as standards by many manufacturers. There were 738 orders issued on ventilation and dust removal in 1917, compared with 416 such orders issued in 1916.

The problems of ventilation, dust and lighting were treated in detail in our report for the year 1916 and need not be re-stated here. It is essential, however, that both employer and employee recognize these factors of industrial life as the most harmful of all agents in the production of fatigue, in decreasing the output and efficiency, and in causing occupational loss of time and labor turnover.

¹ Industrial Bulletin No. 11: "Rules and Regulations suggested for Safety in the Manufacture of Benzene Derivatives and Explosives."

² "Some Facts about Dust and Your Pay Envelope."

COMPLAINTS.

The investigation of complaints relative to insanitary working conditions forms a very valuable part of the work of this department. It has frequently happened that complaints received have pointed out to us the real sore spot in an establishment which routine inspection would never detect. All complaints received, from whatever source, are considered confidential, and this has resulted in greatly encouraging workers, public citizens and others to make complaints which, under other circumstances, they might hesitate to furnish. The complaints lead our inspectors directly to the source of the evil, and this puts into operation immediately machinery for correcting the same.

Such inspections it not infrequently happens that the inspector is sent to an establishment which, in view of the limited number of inspectors, would not have been reached until weeks or months later. It results, also, in the inspector observing many other conditions in the same establishment calling for correction. There were 242 complaints on insanitary working conditions, unsuitable toilet accommodations, etc., received and investigated during the year.

MEDICAL AND SURGICAL KITS.

The number of orders for installing medical and surgical kits for the first aid treatment of persons injured or taken ill on the premises is exceeded only by the number of orders issued for providing toilets and washing facilities. During the year, 1,035 establishments were required to install a first aid equipment as provided for by the State law. The importance of this protection is very great. Its object is to treat immediately simple cuts and bruises so as to render them less liable to infection with serious results. In each first aid equipment required by the State law are included solutions, washes, ointments and bandages, which, if used immediately after the accident and in accordance with the printed regulations furnished, will prevent infection and will reduce to a minimum loss of time incidental to minor accidents. To the neglect of such first aid treatment can be traced directly practically all of the serious secondary infections in industrial accidents that so frequently result in the destruction of bone and tissue and very

often in the loss of a limb or of life itself. There is nothing contained in the equipment specified that is in any way dangerous to life even if taken internally by mistake. Neither does the employment of these first aid measures affect in any way the question of insurance or compensation. While it is probably advantageous to have a nurse or a specially trained foreman or forewoman in charge of the first aid treatment of these minor affections, nevertheless such special training is not necessary to carry out the purposes for which these special medical chests were provided.

The practice of placing the medical supervision of employees under physicians or nurses is extending rapidly throughout the industries of this State. This is both a humane and an economic problem. Undoubtedly much of the broken employment can be avoided by proper treatment of persons taken ill or injured on the premises. The full benefit, however, of such preventive work lies in the creation of an interest and an active co-operation among the workers themselves. First aid committees and safety organizations have demonstrated repeatedly their great value in reducing the number of accidents and of serious illnesses incidental to occupational life. Many manufacturers are taking advantage of the various first aid courses being offered by the Red Cross and similar organizations and are giving to competent leaders in their establishment the benefits of such courses. These leaders are to organize later the various workers under their supervision into committees and safety organizations. In all this work of reducing sickness, accidents and deaths among the wage earners, this department has a very important part. It is, in fact, the center to which the industries look for standards and direction. We are admirably prepared to organize and direct such movements, and our co-operation with the various establishments has been greatly appreciated.

ACCIDENT PREVENTION.

The responsibility of this department for the prevention of industrial accidents has been met in part during the past year by the adoption of the safety rules referred to in another part of this report. While awaiting the completion of a workable policy of securing accident reports from the Industrial Accident Board, as required by the provisions of chapter 308 of the

General Acts of 1916, we have had furnished to us daily news "clippings" of accidents occurring throughout the State. While recognizing the inadequacy of this method of securing accident reports, nevertheless it had the advantage of giving to us reports of accidents that were of a sufficient degree of seriousness to attract publication in the daily press. This is far more helpful, so far as preventive measures are concerned, than a larger number of accident reports, many of which relate often to accidents that are of an insignificant, trifling nature; very many such reports relate to personal illnesses not of occupational origin. Believing that these accident reports might furnish suggestions as to the line of preventive work promising the greatest benefit and with a view of establishing certain definite dangers in the various industries, an intensive study was made of more than 1,000 cases of industrial accidents reported in the daily papers. Several of these cases did not warrant the time for further investigation; others furnished inaccurate data of names, industries and location. We were able, however, to compile 818 industrial accident reports, more or less serious, and have made a special study of this group.

In this study we limited our investigation to those accidents the prevention of which is provided for by existing laws and safety rules. Data have been gathered, however, from this study that will furnish bases for safety rules in several lines of occupations not covered now by preventive measures, *e.g.*, trench and manhole work, linemen, railroad workers, etc.

These accidents studied may be classified as follows:—

	Number of Accidents in- vestigated.	Fatal Injuries.	Permanent Injuries. ¹	Temporary Injuries.
Textile industry (including woolen),	233	18	46	169
Shoe industry,	101	6	27	68
Machine shop,	151	15	101	35
Woodworking industry,	94	4	44	46
Paper industry,	74	6	17	51
Rubber industry,	16	2	5	9
Elevator accidents,	57	20	1	36
Staging accidents (including buildings),	92	20	-	72
Total,	818	91	241	486

¹ Chiefly amputations.

The study of the accidents in each of the above-named industries furnishes some interesting data.

TEXTILE INDUSTRY.

1. *Danger Zones.*

Of the 233 accidents occurring in the textile industry, — 18 of which were fatal, — 51 occurred in the carding department, 22 in the spinning department, 21 in the weaving department, 15 in the drawing-in department, 13 in the picker department, 19 on rolls; 14 were due to falls, 10 to burns, 9 to belts, 10 to gears; 12 to shafting, 4 to the shearing machinery, and 33 were unclassified.

Of the 17 fatal accidents in this branch of industry, 5 were due to electricity, 4 to elevators, 3 to shafting, 2 to falls, and 1 each to falling material, beaming machinery, sand-blasting and cleaning rolls.

2. *Nature of Injuries.*

The nature of the injuries of the accidents in the departments follows: —

(a) *Carding Department.* — The accidents in this department were as follows: —

Arm amputated,	6
Hand amputated,	3
Four fingers amputated,	3
Three fingers amputated,	4
Two fingers amputated,	4
One finger amputated,	7
Hand lacerated,	4
Fingers lacerated,	6
Arm lacerated,	1
Arm broken,	2
Finger broken,	1
Finger lacerated,	6
Skull fractured,	1
Miscellaneous,	3

(b) *Spinning Department.* — There were 22 accidents, chiefly temporary in nature. The large majority of accidents in this department result from belts, shafting, gears and pulleys. One fatal accident occurred in this department, due to the breaking of an overhead 9-inch double ply drive belt, 102 feet long, traveling at the rate of 4,228 feet a minute, breaking at the

motor pulley end, one of the broken ends striking an employee who was about 23 feet away, killing him instantly.

Another serious accident in this department was that of a boy who sustained a fractured skull while engaged in cleaning a mule in motion.

These accidents to minors are significant from the fact that a great number of boys are employed in the spinning department of textile industries. Many of the accidents result from cleaning machinery — especially twister frames — while in motion, and from loose clothing of workers catching in the spinning frames.

(c) *Weaving Department.* — Among the 21 accidents occurring in the weaving department, 11 were due to flying shuttles. The remaining 10 were due to pulley, gear and shafting accidents, 6 from cleaning machinery while in motion; 4 of the accidents resulted in fractures, 3 in fingers amputated, and 7 in burns or lacerations.

(d) *Drawing-in Department.* — There were 15 accidents in this department. The more frequent source of accidents was gears, belts and shafting, particularly in cleaning rollers. All these accidents happened while the operative was engaged in cleaning machinery in motion, contrary to the law, also contrary to the rules of many mills. Septic wounds are common in this department, due to the irritation in the spooling process.

(e) *Picker Department.* — There were 13 accidents. This department was frequently the scene of very serious accidents. During the year an employee lost a hand; another lost an arm; while accidents resulting in the amputation of fingers were quite common, — 8. The principal source of the serious accidents was the beater pulley, and cases where the operative tried to move shoddy material from between faced rolls and from revolving screen and picker machines; 4 cases of accidents resulted from shifting belts.

In this department it is a common practice for the operative to raise the beater bonnet and insert his hand into the opening, which results in either crushing the hand or taking it off above the wrist. In many establishments this possibility is guarded against by an arrangement which locks the cover in such a way that it cannot be opened except when the machine is stopped.

3. *Dangerous Machinery.*

(a) *Rolls.* — There were 19 accidents. All the accidents occurring in connection with this branch of machinery were of a serious nature. One resulted in an amputation of the arm, 2 in a compound fracture of the arm, 1 in a fracture of the skull (fatal), 1 in a fractured finger, 3 in the amputation of three fingers, 4 in the amputation of one finger, 1 in the amputation of four fingers, and 6 in the crushing of two or three fingers. All these accidents occurred while cleaning machinery when in motion.

(b) *Shafting.* — Seven of the 12 accidents on shafting resulted in employees being caught on the end of projecting shafting not suitably guarded, and 3 were due to the falling of shafting not properly secured. Three serious accidents of this group were due to long, loose hair of girls getting caught on the shafting. Two were due to loose clothing catching on shafting.

(c) *Belts.* — Of the 9 accidents due to belts, 1 resulted in the amputation of an arm and 3 in the fracture of an arm in an attempt to remove accumulated waste without waiting for the rotary cylinder connected with the machine to stop revolving. Four other serious accidents (3 in loss of a finger) resulted from operatives catching the hand between belt and pulley.

(d) *Gears.* — Seven of the 10 accidents resulted in the loss of one or more joints of fingers and were due chiefly to cleaning gears while the machinery was in motion. One accident on a cone duster resulted in the loss of both hands at the wrist.

From the above summary of the accidents in textile industries, the danger zone would seem to be chiefly in the carding department. To guard against accidents in this department, provision should be enforced against the opening of the cylinder cover while the machine is in motion. It frequently happens that after the employee strips the card, which necessitates the opening of the cover, he leaves his machine and goes to the next machine. The collection of a thin veil of cotton in front of the cylinder frequently hides the dangerous revolving cylinder, and the operator, in attempting to remove this cotton, is caught by the rapidly revolving card. A safety device has been installed in many establishments to provide against acci-

dents on this machinery. This device consists of a fork-shaped attachment, the short end of which rests on the cover and the other end inside the driving belt. This attachment must be moved in order to allow the removal of the cover, but in moving it the long end passes the driving belt on to the loose pulley. When the employee wishes to start the card again, the door of the cover must be closed and the short end of the fork placed in position before the driving belt can be moved from the loose to the tight pulley. This makes it practically impossible to start the card without closing the door. There is, however, a danger in the stopping of the machine that results in many serious accidents. After the belt is thrown off, the cylinder continues to revolve for fully a minute and a half. The operator opens the hood and gets his hand in contact with this revolving reel.

SHOE INDUSTRY.

In an attempt to locate the danger zone in the shoe industry, the study of 101 cases showed that 52 (1 fatal) occurred on die-cutting machinery, 13 on skiving machinery, 8 on lasting machines, 2 on eyeletting machines, 2 on buffing machines, 6 (2 fatal) were due to belt and pulley accidents, while 7 accidents (2 fatal) occurred in tannery operations; 11 accidents (1 fatal) occurred in miscellaneous occupations.

In studying the cause for such a large number of accidents on the die-cutting machines, it is clearly evident that practically 90 per cent. of these accidents are due to the operative having his hand caught between the die and the block, either by the machine "repeating," or because the operative's foot comes in contact with the treadle and so releases the die that it catches his hand. There seems to be little opportunity for accident on die machines while the machine is in operation, as both hands of the operative are engaged in holding the leather smooth or taut and they are outside the die. When, however, the die is being changed, or the operative is smoothing out the material when the machine is at rest, the control clutch is frequently released by a careless movement of the operative's foot and the hand or finger is caught before it can be withdrawn.

The accidents on the heel-cutting machines are frequently due to the operative using his hand to remove material that fails to fall into place, instead of using the stick provided for this operation.

On the skiving machines, supposed to be well guarded, there is a space of about three-fourths of an inch under the guards which allows an opportunity for fingers to be caught and crushed. There seems to be no reason why this space could not be substantially reduced without interfering with the work done on this type of machine.

On the embossing machines, notices are posted warning operators not to place the hands upon the rising table, and a stick is provided on most machines for straightening out the leather. Many accidents, however, occur from a disregard of this regulation.

Many of the accidents in the shoe industry are of a temporary nature, resulting in crushed fingers, which, if promptly attended to before blood poisoning develops, would not require amputation.

The increased number of women now undertaking work formerly carried on by men makes the guarding of machinery in the shoe industry one of the most pressing problems in the prevention of industrial accidents.

MACHINE SHOP.

Of the 151 cases of industrial accidents connected with machine shops, 99 occurred in machine construction establishments, 13 in bakeries, 4 in laundries, 9 were due to bursting emery wheels, and 18 were unclassified.

There were 13 fatal accidents in the machine industries due to planer machines, 2 to derricks, and 1 each to gears, splitting saw, crane, falling weight, explosion, electric shock, elevator, hydraulic pump and fall.

An attempt to locate the dangerous machinery zone in a machine shop by an analysis of the 99 accidents occurring in that department shows that 27 were due to press machines, 8 to shafting, 7 to rod drawing machines, 6 to cranes, 6 to planers,

4 to sawing machines, 4 to drill machines, 3 each to gears, milling machines, grinding machines, cutting machines and roller machines. There were 3 accidents due to molten iron, and 2 each to boring machines, screw machines and lathes; 11 were due to falling over objects.

Most of the accidents in the machine shops are of a very serious nature and result in amputations, bad fractures and serious burns. Fifty per cent. of the accidents cause permanent incapacity.

The enforcement of new "Rules and Regulations Relative to Foundries"¹ should result in a material reduction in accidents in this branch of industry.

WOODWORKING INDUSTRY.

An analysis of the 94 cases of accidents occurring in the woodworking establishments showed that 57 were connected with saws, 21 with planers, 12 with belting and shafting, and 4 were miscellaneous.

The accidents in connection with saws showed that 39 occurred while working on circular saws, 6 on cutting-off saws, 5 with rip saws, 4 with band saws, and 3 with buzz saws.

Of 21 accidents on planers, 14 occurred on surface planers and 7 on buzz planers. Many of these accidents on planers are due to the piece "jumping" or splitting, thus bringing the operator's hands into close contact with the knife at the point where the work is passing.

So many satisfactory and efficient safety devices have been provided for woodworking machinery that this large number of accidents seems unnecessary. The contention of many employers that the workmen will not permit the use of guards on the different kinds of machinery is not substantiated by an investigation of work being done in many other establishments doing similar work.

Fully 50 per cent. of all accidents on woodworking machinery inflict permanent injuries, either of the loss of fingers, hands or arms.

¹ Bulletin No. 10.

PAPER INDUSTRY.

In the study of 74 cases of accidents in the paper industry, with a view of locating the danger zone in this industry, it was shown that 8 accidents occurred on calender machines, 6 on rolls (principally "deckling" machine), 6 on rag threshing machines, 5 on power punch machines, 4 while taking off rolls of paper, 3 were due to falls, 4 to belts, and 2 to set screws. The remaining cases were caused in several different branches of the industry. There were 6 fatal cases; 17 of the accidents were of a permanent nature, ranging from the loss of one finger to the loss of an arm. In the paper industry we have many of the elements of danger from rolls met with in the textile industry. Practical and satisfactory guards against accidents from feeding paper into the calenders exist. This is a simple device that prevents a man's hand from being carried between the heavy rolls, a very prolific source of serious accidents on these machines.

RUBBER INDUSTRY.

Six of the 16 accidents reported from rubber industries occurred in connection with roll machines, 2 were due to belting and shafting, 2 to chains (1 fatal), 1 each to baling machine, threshing machine and die machine. One fatal case was due to a freight car accident.

ELEVATOR ACCIDENTS.

The large number of fatal cases connected with elevator accidents, *i.e.*, 20 out of a total of 57 accidents, shows the serious nature of this factor in various industries. Of the fatal accidents, 13 were due to passengers being caught by a descending car; 7 were due to falls down elevator shafts.

In the nonfatal group of elevator accidents, 21 were due to being caught between the floor and car, 6 to being struck by descending elevator, 6 to drop of the elevator, 3 to stepping off elevator while in motion, and 1 to falling down shaft. Fifteen (6 fatal) were accidents to minors, who are prohibited by law from operating elevators.

STAGING ACCIDENTS.

There were 20 fatal accidents among the 92 accidents in the building trades investigated in this study. These fatal cases were as follows: —

Falls from staging,	10
Collapsed staging,	3
Overloaded staging,	2
Falling derrick,	1
Falling through opening,	1
Riding on materials,	1
Hoisting apparatus,	1
Burn by gasoline torch,	1

2 nonfatal accidents the following is noted: —

Falls from staging,	30
Falling from staging,	15
Falling material,	6
Broken ladders,	4
Falling through openings,	4
Hoisting machines,	4
Riding on loads,	2
From salamander fumes,	1
From miscellaneous causes,	6

From the foregoing tabulation of accidents in the building trades, it is evident that many similar accidents can be prevented by the proper enforcement of our "Rules governing Safety in Building Operations."¹

CONCLUSION.

Recognizing the inadequacy of the data at hand as a basis for deductions, nevertheless there is sufficient set forth to suggest lines of action leading to a material reduction in the number and seriousness of industrial accidents. In the meantime it is well to emphasize a fact not generally recognized: that accident data from many States tabulate accidents of all degrees of seriousness without regard to whether or not there is any loss of time and without recognition of a difference between accidents resulting in permanent disability and those resulting in temporary disability only. Many of these data include sickness and

¹ Bulletin No. 12.

illness not due to accident nor to occupation. There is an evident need of a better understanding among States and departments of States in order that there may be a mutual agreement as to the real meaning of statistics so often quoted on the number as well as on the economic loss of industrial accidents. Likewise, until there is some standard basis of compensation that is more or less uniform throughout the States, the comparison of the economic loss, because of industrial accidents between different localities, is apt to be misleading.

OCCUPATIONAL DISEASES.

The reporting of occupational diseases as required by law has been more generally observed by the physicians of the State during the past year than formerly. There is, however, opportunity yet for a wider recognition of this law. The cases reported come from a comparatively small number of physicians, hospitals and industrial establishments. The argument advanced by physicians that they should be compensated for the furnishing of these reports has its basis in the furnishing of birth returns and insurance reports. Whether or not such an arrangement is feasible in the reporting of occupational diseases is at least worthy of consideration. It is a fact, however, that it frequently happens that when the attention of a hospital or a physician or an establishment is called to the occurrence of a case of an occupational disease under their care, reported through the public press, there seems to be a lack of familiarity on the part of such responsible parties that a report of this disease to this department is required by law.

The beneficial effects of this protection to the working people are manifest in the statistics of occupational diseases gathered by this department during the past three years. These reports form the basis for the rules and regulations adopted for the protection of people employed in these dangerous occupations. In 1915 there were 15 cases of caisson disease and in 1916, 15 cases. Since the adoption of rules and regulations¹ protecting workers in compressed air, there has been but 1 case reported, that a fatal one and concerning which there is some question as to the exact cause of death. In 1916 there were 8 cases of

¹ Bulletin No. 7: "Rules and Regulations governing Compressed Air Work."

benzol poisoning (5 deaths) and 31 cases (9 deaths) from fumes and gas poisoning, — a total of 39 cases with 14 deaths from poisoning by the benzine group. Suggestions¹ for the protection of workmen engaged in these lines of industry were prepared and issued, and the return for the year 1917 shows that the number of cases of poisoning from this source has been reduced to 15, with 2 deaths. The number of complaints arising because of the use of volatile substances, such as wood alcohol, amyl acetate and similar compounds, has been reduced materially by the issuance of instructions² on the protection against injury to eyesight, which contain a formula for the substitution of harmless preparations for these very irritating substances.

Lead poisoning is more generally recognized by physicians and hospitals than any other occupational disease. The special efforts of the department during the past year to reduce the hazards from lead in various industries has kept the number of cases of occupational lead poisoning well within bounds.

The following summary of the cases of occupational diseases reported during the past three years shows in a more graphic way the benefits to be derived from reporting occupational diseases: —

	1915	1916.	1917.
Anthrax,	3	27 (4)	52 (9)
Benzol,	—	8 (5)	—
Brass,	—	1	17
Caisson disease,	15	15	1 (1)
Cigar neurosis,	3	—	—
Amyl acetate,	—	—	2
Dermatitis,	6	—	8
Fume and gas poisoning: —			
Aniline oil,	—	—	5
Benzine,	—	—	2 (1)
Carbon bisulphide,	—	—	1
Carbon monoxide,	—	7 (1)	3
Hydrogen sulphide,	—	1 (1)	—
Nitrous acid fumes,	—	4 (2)	1 (1)
Phenol,	—	—	1
Sodium cyanide,	—	—	1
Sulphur dioxide,	—	1 (1)	—
Sulphuric acid,	—	—	1 (1)
Trinitrotoluene,	14 (2)	3 (2)	1
Wood alcohol,	—	1	2 (1)
Lead poisoning,	67 (2)	112	117
Miscellaneous,	5	2 (1)	2
Total,	113 (4)	182 (17)	217 (14)

NOTE. — In the above table the figures within parentheses represent the number of fatal cases.

¹ Bulletin No. 11: "Rules and Regulations suggested for Safety in the Manufacture of Benzine Derivatives and Explosives."

² Bulletin No. 5: "Suggestions to Employers and Employees for the Protection of Eyes and the Prevention of Accidents."

A study of the source and circumstances of each case of occupational disease furnishes a most instructive lesson on the great variety of possibilities for this source of ill health among industrial workers. The length of time that a person has been employed in a particular industry, even when industrial poisons have been constantly present, furnishes no guarantee against such persons becoming incapacitated sooner or later by these poisons. The susceptibility of new workers to industrial poisons has been demonstrated many times in the list of cases reported to this department. It has also been very evident that it is possible for persons in good health to resist the influence of such poisons for a considerable length of time, but only so long as their general health remains unimpaired. Fatigue, overwork, underfeeding, lack of personal hygiene and insufficient sleep are all factors that often precipitate the onset of occupational poisoning. This is a most important fact to-day when workers, especially minors and women, are undertaking work involving many of the factors set forth above.

The lessons taught by England and France — that long hours, overwork, overspeeding and industrial fatigue diminish both efficiency and output as well as undermine the health of workers — have not yet been appreciated fully in this country. It is becoming more evident each month that these factors are to play a more important part in the occupational life of workers than ever before, and will call for the combined efforts of employers and workers to prevent the toll of the great war extending into the industrial field as well as on the battlefield.

The following brief description of some of the cases that have come to our attention during the past year may serve to bring out many facts in the problem of occupational hygiene that space does not permit us to record here: —

A man thirty-eight years of age was taken ill on the street, and on removal to the hospital it was found that he was suffering from caisson disease. He had worked for at least fifteen years in compressed air work and was said to be an experienced workman. While temporarily slightly ill because of a "cold," he carelessly cut short his period of decompression, coming out of the tunnel, with the result that he was attacked with a severe case of "bends" within two hours.

A man was employed as a rubber mixer. His work consisted of putting batches which come from the compounding rooms into the milling machine. A small quantity of aniline oil is mixed with the batches to accelerate the vulcanizing. This aniline mixture is kept in a separate receptacle. One of these receptacles fell, spilling considerable aniline oil on to the clothing and hands of this worker. Three hours later he experienced headache, vertigo, slight tremor, disturbance of gait and was noticed to be cyanotic and had contracted pupils. An examination showed the man had absorbed aniline oil through the skin of his legs as a result of the accident in handling the cask of oil.

A boy sixteen years of age, employed as a plumber's assistant, was engaged in transferring vats of sodium cyanide into barrels by means of a hose siphon. The boy, in play, took a piece of the hose pipe and tried to siphon the sodium cyanide into a flask. He sucked the fluid into his mouth and was immediately taken ill and was put on the danger list at the hospital.

A longshoreman fell asleep among some barrels containing creosote compound. He was found unconscious next morning, lying in a pool of creosote. He died during the day. An autopsy showed acute phenol poisoning.

A man forty-five years of age, employed in the manufacture of surgeons' gloves, where his occupation consisted in the immersing of trays containing 100 gloves each into a liquid cement composed of rubber and benzine, was taken ill with nausea, vomiting, palpitation of the heart, general weakness, headache and slow pulse. The room temperature is usually 88 degrees F., and there is much exposure to volatile benzine fumes. Diagnosis showed benzine poisoning. Proper ventilation of the workroom has eliminated any further cause for complaint among the employees.

A girl sixteen years of age, employed in a shoe factory where amyl acetate is used freely, manifested symptoms of poisoning by this compound. The custom of the establishment was to keep this mixture in an open metal container on the work table of the employees. This girl had worked about two hours when she was overcome by fumes and complained of dizziness, headache, palpitation, nausea and disturbance of vision. There was much flushing of the skin, ringing in the ears, and she was not able to stand nor walk. Safety devices for the use of amyl acetate were provided and there has been no further case of poisoning at the establishment.

An unusual case of death by sulphuric acid fumes was brought to our attention. This man was twenty-one years of age and had been employed about two years as a foreman and manager of the battery depart-

ment of an establishment where batteries are tested. A small amount of sulphuric acid is added after the battery is fully charged. This man was strong, healthy and robust, but was considerably fatigued at the time of the accident because of many hours of overwork. He was suddenly taken ill and died almost immediately. Autopsy showed that the man's hands were cracked open in many cases, and there was acute congestion of the mucous membrane of the trachea, lungs, stomach and intestines and an entire absence of any organic disease. A chemical examination showed the presence of a small amount of sulphuric acid in the trachea, lungs, stomach, intestines and blood.

Four men employed in a foundry, where their work consisted in charging the cupola with iron and coke, were overcome by gas because of a disarrangement of the furnace draft. An examination showed that the men had been poisoned by carbon monoxide, which is generated in a considerable quantity in this process of foundry work.

An unusual outbreak of brass poisoning was reported among the employees in a central telephone exchange. Operators at the switchboard, in making connections, use a plug about 3 inches in length, which consists of a brass tapered tip with a fiber (insulated) shank. There is a brass ferrule at the bottom of this shank. The usual method of operating is to seize the plug with the fingers by the fiber shank, lift it up vertically, "throw it" so as to get it in a horizontal position, then insert it into the proper socket on the switchboard. Some of the operators find it easier to grasp the plug by the brass tip, thus exposing the fingers to contact with this metal. In breaking the connection, the operator seizes the thread-covered cord and pulls the plug out of the socket. The counterweight of the cord draws the plug into place and the cord allows the brass tip to slip through the operator's fingers. A "brass itch" developed on the hands of several of the employees in this central office. This dermatitis was limited to the fingers exposed to the handling of the brass. An investigation showed that there was on the brass ferrule a rough, irritating surface. The correction of this source of irritation eliminated any further cause for complaint.

Brass poisoning among foundry workers is so common that the workers regard it as a necessary part of their occupation. The following history of an establishment where several men manifested acute brass poisoning is not without interest: In the welding department of this establishment, sheet galvanized iron is cut and welded by means of oxy-acetylene torches applied to seams and joints. A temperature of 6300° F. is attained. Practically every sheet metal worker employed in this room gave a history of chills. Six other metal workers in the same department, who did not come in contact with the zinc particles in the atmosphere as intimately as the welders, had history of repeated brass chills. These welders worked

at various periods, — from six weeks to four years. Zinc oxide in the form of white smoke was distinctly visible in the room, especially in the vicinity of the automatic welding machines, due to the fact that the boiling point of zinc is 950° F., while the welding point of iron approximates 2800° F.

Cases of dermatitis, ranging from mild skin irritation to serious infections, are constantly called to our attention in establishments where turpentine, lubricating oils, kerosene and other petroleum compounds are being used. Our observation confirms the experience of many other departments investigating occupational diseases, — that the so-called "cutting oil" seems to give rise to a far greater number of infections than ordinary lubricating oil.

Anthrax has furnished more cases of occupational disease than any other cause except lead. Nine out of the 52 cases reported were fatal. This is by far the largest number of cases of anthrax that has ever occurred in Massachusetts. Some of these cases were so novel in their range as to require special mention. A girl seventeen years of age, employed as a brush maker, reported anthrax. Her work consisted of operating an automatic drawing machine, which is a device for drawing the knotted hair through by means of a curved needle. The material used was hogs' bristles, obtained chiefly from China. The girl scratched her hand and soon afterwards noticed a pimple-like formation that developed rapidly through the day, accompanied by a marked fever. A smear from the wound showed anthrax bacilli. There had been a fatal case of anthrax in this establishment two weeks before.

A man fifty years of age was employed as a janitor in a building where hides were stored. His duties consisted of cleaning the windows and brushing and sweeping the floors, occasionally assisting in weighing bales of wool and hides. He became ill from a lesion on the right forearm, which showed a positive smear of anthrax bacilli.

A man stationed at Camp Devens observed three weeks after his assignment to the camp a "pimple" on his left cheek. Three weeks before this date he had used a new shaving brush that he had bought at a store adjacent to the camp. He had never shaved himself previous to coming into camp. The lesion grew rapidly worse, and two days later gave typical reaction of anthrax. So far as could be learned from investigations, no one else had used this brush and there was no other case of anthrax in camp. Unfortunately the brush had been destroyed before the investigation of the case.

A man fifty-two years of age, employed as a wool sorter, sought treatment for what was considered a small skin eruption. Later in the day the swelling on the left side of the neck at the site of the lesion extended

toward the sternum. This oedema increased rapidly and the man died at 2 o'clock the next day. Culture showed positive anthrax. It was reported that the man had passed a large and bloody stool just prior to death.

A man sixty-four years of age, employed as a brush maker, engaged in sorting a large quantity of horse hair and bristles that arrived from China, was taken ill from an infection on the lower lip that extended rapidly to the chin and neck. Excision was performed and the man died on the same day.

A man twenty-four years of age, employed as a brush maker, developed positive anthrax. This man was employed setting up machinery for drilling holes in wooden blocks and fastening the hair in bundles. Horse hair and pig hair were used. A fellow workman, engaged at the same occupation, died from anthrax one week previous to this man's illness. The interesting feature about this infection was that a tanning company had sent from time to time large drum brushes to this factory to be repaired. These drum brushes are used in cleaning hides in the tannery. It is the custom of the brush factory to use the bristles that could no longer be of service as drum bristles and to work these into brushes. This necessitated employees in the brush factory handling bristles that came from the tanneries in which hides from China and other localities are used. The possibility of transferring anthrax spores from one establishment to the other is strongly suggested by this method of getting material for the making of small brushes.

A man forty-three years of age was employed as a freight handler in a railroad freight house. He had recently assisted in unloading hides from a ship that had come from Calcutta. He noticed a slight eruption on the face, which was diagnosed as anthrax. His death occurred two days later.

In the investigation of cases of anthrax it was learned that in establishments where these cases occurred the disinfection of hides had been temporarily suspended at those places and reliance placed on certificates of disinfection received through consular service. On reassuming disinfection of material at the establishments, as suggested in the "Rules and Regulations for the Prevention of Anthrax"¹ issued by this department, cases of anthrax ceased to occur.

All cases of anthrax reported to this department have been verified by bacteriological or post-mortem findings.

In view of the unusual prevalence of anthrax in this State, a special poster was issued for warning employees of the dangers of this disease.

¹ Industrial Bulletin No. 6.

ANTHRAX EXPERIMENTS.

A series of experiments has been carried on at one of the tanneries in the State in connection with the Sias laboratory in order to determine whether or not the process of disinfection of hides recommended by various departments could be reduced in time requirement and also whether any injury to material would result from the use of such disinfectants. Tests were also made to determine whether or not the tannery vats were infected with anthrax, and whether a method might not be devised for re-establishing and disinfecting efficiency of the solutions and thus reduce materially the cost of resupplying solutions for the vats for each batch of hides. The results of the tests thus far completed were as follows:—

The experiments consisted of exposing anthrax spores, which had been dried upon glass rods, to the action of various acid and salt solutions of varying strength for twenty-four hours and for forty-eight hours. It was found that a 2 per cent. acid and 10 per cent. salt solution down to 1 per cent. acid and 10 per cent. salt killed the spores in forty-eight hours; that solutions varying from $1\frac{1}{2}$ per cent. acid with 10 per cent. salt to three-fourths per cent. acid with 5 per cent. salt killed anthrax spores in twenty-four hours; that solutions of 2 per cent. acid with 10 per cent. salt down to three-fourths per cent. acid with 10 per cent. salt killed spores in forty hours. The conclusion was that a 1 per cent. acid and 10 per cent. salt solution was sufficient for practical work and allowing a fair margin for safety. This means actually 1 per cent. acid, not 1 per cent. of concentrated solution bought on the market.

In noting the action upon hides, it was learned that with a 10 per cent. salt solution there was scarcely any thickening to the hides noticeable; that with a 5 per cent. solution an appreciable amount was present; and that when no salt was present the hides were swollen to about three times their normal thickness.

The results obtained by the foregoing tests show that the solutions recommended in rules and regulations¹ of this department for the prevention of anthrax are efficient and practical.

¹ Industrial Bulletin No. 6.

SPECIAL INVESTIGATIONS.

During the year several investigations were undertaken in various lines of occupational hygiene.

Inspector Wm. Newsome Eichorn made a detailed study of the water supply of Lowell, Mass., with reference to its use for drinking, washing and humidifying purposes in the various establishments of the city.

This investigation, like the one done by Inspector Eichorn the year previous in the city of Fall River, shows the great necessity of safeguarding against the use of polluted water for drinking purposes. In industry polluted water is frequently furnished to sinks to which is also piped pure water for drinking purposes. In several of the industries there is no distinctive mark on these faucets furnishing two supplies so entirely different, and it is a fair conclusion, based upon a study of the morbidity of typhoid fever in these two cities, that this is a very probable source for the contraction of that disease. It would seem as if some distinctive measure should be adopted to prevent employees from using water for drinking purposes that is furnished for washing. Painting faucets a different color seems most practicable for this purpose.

Inspectors John J. McDonough and Frederick S. Brown made a detailed inspection of the various newspaper establishments in Boston for the purpose of bettering the ventilation as well as the washing, toilet and sanitary conditions.

Inspector Alfred W. Kimball investigated the sanitary conditions of the fish-packing plants at Gloucester and Plymouth.

Inspectors Eugene J. McCarthy and Wm. Newsome Eichorn investigated the different industrial establishments at Framingham in co-operation with the National Health Survey work being carried on at that place. In view of the importance that this investigation is to bear to the health experiment at Framingham, under the direction of the Russell Sage Foundation and the Metropolitan Life Insurance Company, our portion will be included in the report made under the direction of these agencies, and need not be included here.

Yours respectfully,

THOMAS F. HARRINGTON,

Deputy Commissioner of Labor.

REPORT OF THE WAR EMERGENCY INDUSTRIAL COMMISSION.

To the State Board of Labor and Industries.

Shortly after the declaration of war by the United States, the Legislature of Massachusetts passed an act (chapter 342, General Acts of 1917) which was known as "An Act to provide for the better defence of the Commonwealth in time of war." This act was very broad in its scope and included extraordinary powers vested with the Governor and Council. The sale of certain commodities, the registration of aliens, the taking of property of various kinds, the definition of the power and authority of the Governor in the matter of common defence, deeds and other legal instruments of persons in the army and navy, deposition of persons in the army and navy, and other important war emergencies were included in the provisions of this law.

Section 24 of the act, to which we refer, provided for the organization of a committee of five to be appointed with the approval of the Governor by the State Board of Labor and Industries. It was provided that the Commissioner of Labor should be a member of the committee and *ex officio* its chairman, two members of this committee to be representatives of employers of labor, with two representatives of wage earners.

Any employer of labor was given the right to make application to this committee, setting forth that a law or laws of the Commonwealth licensing or regulating labor, or the employment of labor, or any law or laws of the Commonwealth in any manner affecting conditions of labor, interfere with the prosecution of work which said employer is doing or is about to do, which work is required by an emergency arising out of the existing state of war, and requesting that such laws, or any part thereof, be suspended so far as the same are applicable to his work or establishment.

Hearings were to be given¹ on such applications, and permission given for the attendance of representatives of the interested parties. In cases where the emergency was urgent, the Commissioner of Labor was to grant similar permits, which would expire automatically in seventy-two hours after the grant.

The entire office force and equipment of the State Board of Labor and Industries was placed at the disposal of this committee, and the advice, assistance and co-operation of any other department, board or commission of the Commonwealth was, upon request, to be immediately extended to said committee.

The title, so expressive of the work designed for this committee, "The War Emergency Industrial Commission," was selected by you, and the commission held its first meeting June 30, 1917.

We beg to submit the following statement of the applications, with the action taken, since the work was begun: —

Number of meetings,	25
Number of hearings,	118
Number of petitions,	145
Number of permits granted,	65
Number of concerns granted permits,	35
Number of temporary permits granted,	25

The work covered applications from the following establishments: —

APPLICATIONS RECEIVED AND DECISIONS RENDERED FROM JUNE 30, 1917,
TO JAN. 1, 1918.

NAME OF APPLICANT.	Residence.	Nature of Application.	Decision.
Abbot Worsted Co., . . .	Forge Village, . . .	Overtime employment of women and minors.	Denied.
Etna Hosiery Co., ¹ . . .	Worcester, . . .	Overtime employment of women.	Granted.
Etna Hosiery Co., . . .	Worcester, . . .	Alterations in permit, . . .	Defaulted.
Etna Hosiery Co., . . .	Worcester, . . .	Alterations in permit, . . .	Granted.
American Knitting Co., . . .	Waltham, . . .	Overtime employment of women and minors.	Denied.
American Steam Gauge and Valve Mfg. Co.	Boston, . . .	Overtime employment of women.	Denied.
American Woolen Co., . . .	Rochdale, . . .	Overtime employment of women.	Dismissed.
Bates, A. J., Co., ¹ . . .	Webster, . . .	Overtime employment of women.	Granted.
Bay State Pink Granite Co., . . .	Milford, . . .	Suspension of engineer's license law.	Withdrawn.

¹ Concerns granted permits.

APPLICATIONS RECEIVED AND DECISIONS RENDERED FROM JUNE 30, 1917,
TO JAN. 1, 1918 — *Continued.*

NAME OF APPLICANT.	Residence.	Nature of Application.	Decision.
Bay State St. Ry. Co., . . .	Worcester, . . .	Suspension of engineer's license law.	Denied.
Bent, G. W., Co., . . .	Boston, . . .	Overtime employment of women.	Denied.
Boott Mills, ¹ . . .	Lowell, . . .	Overtime employment of illiterates.	Granted.
Boston Rubber Shoe Co., . . .	Malden, . . .	Overtime employment of women.	Denied.
Briggs, D. F., Co., . . .	Attleboro, . . .	Overtime employment of minors.	Denied.
Burmus Paper Co., . . .	West Dudley, . . .	Overtime employment of minors.	Dismissed.
Burton & Co., Inc., . . .	Boston and Clinton, . . .	Overtime employment of women.	Defaulted.
Burton & Co., Inc., . . .	Boston and Clinton, . . .	Overtime employment of women.	Denied.
Cambridge Gas Co., . . .	Cambridge, . . .	Suspension of engineer's license law.	Denied.
Cambridge Rubber Co., ¹ . . .	Cambridge, . . .	Overtime employment of women.	Granted.
Cambridge Rubber Co., . . .	Cambridge, . . .	Extension of permit, . . .	Granted.
Cambridge Rubber Co., . . .	Cambridge, . . .	Extension of permit, . . .	Defaulted.
Cambridge Rubber Co., . . .	Cambridge, . . .	Extension of permit, . . .	Defaulted.
Carter, William, Co. (The), ¹ . . .	Needham Heights, . . .	Night employment of women.	Granted.
Carter, William, Co. (The), . . .	Needham Heights, . . .	Extension of permit, . . .	Granted.
Carter, William, Co. (The), . . .	Needham Heights, . . .	Extension of permit, . . .	Granted.
Carter, William, Co. (The), . . .	Needham Heights, . . .	Night employment of one woman in Springfield plant.	Granted. ²
Carter, William, Co. (The), . . .	Needham Heights, . . .	Night employment of women.	Granted.
Carter, William, Co. (The), . . .	Needham Heights, . . .	Overtime employment of women and thirty-minute lunch period.	Granted.
Cass, N. D., Co., . . .	Athol, . . .	Overtime employment of women and minors.	Dismissed.
Chase, L. C., & Co., ¹ . . .	Boston and Watertown, . . .	Overtime employment of women.	Denied.
Chase, L. C., & Co., . . .	Boston and Watertown, . . .	Night employment of women.	Granted.
Condit Electrical Mfg. Co., ¹ . . .	South Boston, . . .	Lessening of lunch period, . . .	Granted.
Corbin, B. A., & Son Co., ¹ . . .	Webster and Marlborough, . . .	Overtime employment of women and minors.	Granted. ³
Corbin, B. A., & Son Co., . . .	Webster and Marlborough, . . .	Extension of permit for overtime employment of women.	Granted.
Corbin, B. A., & Son Co., . . .	Webster and Marlborough, . . .	Extension of permit for overtime employment of women.	Granted.
Couch, S. H., Co., . . .	Norfolk Downs, . . .	Overtime employment of minors.	Denied.
Daniels Mfg. Co., . . .	East Brookfield, . . .	Overtime employment of women and minors.	Denied.
De Lue & Co., . . .	Boston, . . .	Overtime employment of women.	Denied.
Dolloff, C. W., & Co., ¹ . . .	Boston, . . .	Overtime employment of men on public work.	Granted.
Durfee Mills, . . .	Fall River, . . .	Employment of women and minors Saturday afternoon.	Denied.
Emerson Shoe Co., . . .	Rockland, . . .	Lessening of lunch period, . . .	Denied.
Emerson Shoe Co., ¹ . . .	Rockland, . . .	Reconsideration of decision.	Granted.

¹ Concerns granted permits.

² For 12 spinning frames and 10 winding machines, one woman as seamer.

³ For women; denied for minors.

APPLICATIONS RECEIVED AND DECISIONS RENDERED FROM JUNE '30, 1917,
TO JAN. 1, 1918 — *Continued.*

NAME OF APPLICANT.	Residence.	Nature of Application.	Decision.
Emmons Loom Harness Co., .	Lawrence, . .	Overtime employment on Saturday afternoon.	Denied.
Ettrick Mills,	Worcester, . .	Overtime employment of minors.	Denied.
Everlastik, Inc., ¹ . . .	Chelsea, Brockton and Lowell.	Overtime employment of women.	Granted.
Everlastik, Inc.,	Chelsea, Brockton and Lowell.	Extension of permit, .	Granted.
Everlastik, Inc.,	Chelsea, Brockton and Lowell.	Extension of permit, .	Granted.
Everlastik, Inc.,	Chelsea, Brockton and Lowell.	Extension of permit, .	Granted.
Fitchburg Horn Goods Co., .	Fitchburg, . .	Overtime employment of women and minors.	Dismissed.
Fogg, Charles E., Co., ¹ . .	Boston,	Overtime employment of women.	Granted.
Fogg, Charles E., Co., . .	Boston,	Extension of permit, .	Granted.
Fogg, Charles E., Co., . .	Boston,	Extension of permit, .	Defaulted.
Fogg, Charles E., Co., . .	Boston,	Overtime employment of women and Sunday employment.	Granted.
French & Ward,	West Stoughton, .	Overtime employment of women.	Denied.
General Electric Co., . .	West Lynn, . .	Overtime employment of minors.	Denied.
Glendale Elastic Fabric Co., .	Easthampton, .	Overtime employment, .	Denied.
Graton & Knight Mfg. Co., ¹	Worcester, . .	Overtime employment of women and minors.	Granted. ²
Green, Daniel, Felt Shoe Co.,	Boston and Worcester.	Overtime employment of women.	Denied.
Green, Samuel M., Co., ¹ .	Springfield, . .	Night employment of women.	Granted.
Gurney, D. B., Co., . . .	Whitman, . . .	Overtime employment of women.	Denied.
Herman, Joseph M., Shoe Co.,	Millis,	Overtime employment of minors.	Denied.
Hewes & Potter, ¹	Boston,	Overtime employment, .	Granted.
Hewes & Potter,	Boston,	Night employment of women.	Granted.
Hewes & Potter,	Boston,	Alteration in permit, .	Granted.
Hilliard & Merrill, Inc., .	Lynn,	Overtime employment of minors.	Denied.
Holbrook, Cabot & Rollins Corp. ¹	Boston,	Overtime employment of men on public work.	Granted.
Holbrook, Cabot & Rollins, Corp.	Boston,	Extension of permit, .	Granted.
Holbrook, Cabot & Rollins Corp.	Boston,	Extension of permit, .	Granted.
Holbrook, Cabot & Rollins Corp.	Boston,	Extension of permit, .	Granted.
Hood Rubber Co.,	Watertown, . .	Sunday employment, .	Denied.
Hostess House,	Ayer,	Overtime employment of women.	Defaulted.
Hostess House,	Ayer,	Overtime employment of women.	Denied.
Howard Bros. Mfg. Co., . .	Worcester, . .	Overtime employment, .	Defaulted.
Howard Bros. Mfg. Co., . .	Worcester, . .	Overtime employment, .	Defaulted.
Howe, S. H., Co.,	Marlborough, .	Overtime employment, .	Defaulted.
Hudson, Richmond F., ¹ . .	Medrose, . . .	Overtime employment of men on State highway.	Granted.
International Steel and Ordnance Corp. ¹	Lowell,	Lessening of lunch period,	Granted.

¹ Concerning granted permits.² For women; denied for minors.

APPLICATIONS RECEIVED AND DECISIONS RENDERED FROM JUNE 30, 1917,
TO JAN. 1, 1918 — *Continued.*

NAME OF APPLICANT.	Residence.	Nature of Application.	Decision.
International Steel and Ordnance Corp.	Lowell, . . .	Extension of permit, . .	Granted.
Ley, Fred T., Co., ¹ . . .	Springfield, . . .	Overtime employment of men on public work.	Granted.
Long, R. H.,	Roxbury,	Lessening of lunch period,	Filed.
Loud, W. F., & Sons Co., ¹ . . .	Quincy,	Overtime employment of men on highway.	Granted.
Massachusetts Chocolate Co., ¹ . . .	Boston,	Sunday employment of men.	Granted.
Massachusetts Chocolate Co., . . .	Boston,	Extension of permit, . .	Granted.
Massachusetts Chocolate Co., . . .	Boston,	Extension of permit, . .	Denied.
Massachusetts Chocolate Co., . . .	Boston,	Sunday employment of men.	Granted.
Mayo Woolen Co.,	Millbury,	Overtime employment of one woman.	Defaulted.
Mayo Woolen Co.,	Millbury,	Overtime employment of one woman.	Withdrawn.
McCallum Hosiery Co.,	Northampton, . .	Overtime employment of women and minors.	Defaulted.
Medford Woolen Mfg. Co.,	Medford,	Overtime employment, . .	Denied.
Merrimack Mfg. Co.,	Boston,	Overtime employment of women.	Denied.
Metals Production Equipment Co.	Springfield, . . .	Sunday employment, . .	Dismissed.
Middlesex Construction Co., . . .	Fairhaven,	Overtime employment of men on highway.	Withdrawn.
Mills Woven Cartridge Belt Co., ¹	Worcester,	Overtime employment of women and minors.	Granted. ²
Mills Woven Cartridge Belt Co.,	Worcester,	Extension of permit, . .	Granted.
Mills Woven Cartridge Belt Co.,	Worcester,	Extension of permit, . .	Granted.
Mythic Rubber Corp., ¹	West Medford, . .	Overtime employment of women and minors.	Granted. ²
Nash, E. R., Co., ¹	Haverhill,	Two shifts for women, . .	Granted.
New York Embroidery Co.,	Boston,	Overtime employment of women.	Denied.
North Adams Mfg. Co.,	North Adams, . .	Overtime employment of women.	Defaulted.
Northampton Silk Co.,	Florence,	Overtime employment of women and minors.	Defaulted.
Peerless Knitting Mills,	Mattapan,	Overtime employment of women.	Denied.
Peerless Knitting Mills, ¹	Mattapan,	Overtime employment of women.	Granted.
Plant Bros. & Co., ¹	Boston,	Overtime employment of women.	Granted.
Pontoon Woolen Mfg. Co.,	Pittsfield,	Overtime employment, . .	Withdrawn.
Quincy Industrial School,	Quincy,	Overtime employment of minors.	Denied.
Reynolds, Drake & Gabel Co., . . .	North Easton, . .	Overtime employment, . .	Denied.
Rice & Hutchins, Inc.,	Marlborough, . .	Overtime employment of women.	Dismissed.
Rockwell Woolen Co.,	Leominster, . . .	Lessening of lunch period,	Denied.
Rockwell Woolen Co., ¹	Leominster, . . .	Overtime employment of women.	Granted.
Samoet Co.,	Boston,	Overtime employment of women.	Denied.
Shaw Stocking Co., ¹	Lowell,	Overtime employment of women.	Granted.
Shawmut Woolen Mills, ¹	Stoughton,	Overtime employment of women.	Granted.
Shawmut Woolen Mills,	Stoughton,	Change in permit, . . .	Granted.

¹ Concerns granted permits.² For women; denied for minors.

APPLICATIONS RECEIVED AND DECISIONS RENDERED FROM JUNE 30, 1917,
TO JAN. 1, 1918 — *Concluded.*

NAME OF APPLICANT.	Residence.	Nature of Application.	Decision.
Shults-Goodwin Co., . .	Boston, . . .	Special employment of minor.	Denied.
Slattery, E. T., Co., . .	Boston, . . .	Employment of minors, .	Withdrawn.
Sprague, Frederick H., Co., .	Fitchburg, . .	Overtime employment of women.	Denied.
Sterling Motor Car Co., . .	Brockton, . .	Thirty-minute lunch period.	Defaulted.
Sterling Motor Car Co., . .	Brockton, . .	Thirty-minute lunch period.	Denied.
Stevens, M. T., & Sons Co., .	North Andover,	Rearrangement of time schedule.	Filed.
Talbot Wool Combing Co., .	Norton, . . .	Overtime employment of minors.	Denied.
Taunton Knitting Co., . .	Taunton, . . .	Overtime employment of minors.	Denied.
Taylor, J. K., Mfg. Co., . .	Boston, . . .	Overtime employment of women and minors.	Dismissed.
Thompson Bros., ¹ . . .	Brockton, . .	Overtime employment of women and minors.	Granted.*
Thompson Bros., . . .	Brockton, . .	Extension of permit, .	Granted.
Tomaselli, A. G., . . .	Dorchester, .	Overtime employment on State highway.	Denied.
Union Carpet Lining Co., ¹ .	Boston, . . .	Overtime employment of women.	Granted.
Union Carpet Lining Co., .	Boston, . . .	Overtime employment of women.	Denied.
Union Carpet Lining Co., .	Boston, . . .	Overtime employment of women.	Granted.
Union Carpet Lining Co., .	Boston, . . .	Overtime employment of women.	Granted.
Union Carpet Lining Co., .	Boston, . . .	Overtime employment of women.	Granted.
United States Cartridge Co.,	Lowell, . . .	Overtime and night employment of women.	Denied.
Valley Woolen Co., ¹ . . .	Cherry Valley,	Overtime employment of women and minors.	Granted.*
Viscol Co., . . .	Cambridge, . .	Overtime employment of women.	Denied.
West End Thread Co., . .	Millbury, . .	Overtime employment of women and minors.	Denied.
Wetherell, O. B., & Son Co., .	Fall River, . .	Overtime employment of women and minors.	Denied.
White, L. Q., ¹ Shoe Co., . .	Bridgewater, .	Thirty-minute lunch period.	Granted.
White, L. Q., Shoe Co., . .	Bridgewater, .	Extension of permit, .	Granted.
Whiting, John L.—J. J. Adams, Co.	Boston, . . .	Lessening of lunch period,	Denied.
Woodward & Cochey, Inc., ¹ .	Lynn, . . .	Overtime employment of women.	Granted.
Worcester Bleach and Dye Works Co., ¹	Worcester, . .	Overtime employment of women.	Granted.
Worcester Bowling Alleys, . .	Worcester, . .	Overtime employment of minors.	Defaulted.
Worcester Bowling Alleys, . .	Worcester, . .	Overtime employment of minors.	Denied.
Worcester Pressed Steel Co., .	Worcester, . .	Overtime employment of women.	Defaulted.
Worcester Telegram, . . .	Worcester, . .	Overtime employment of minors.	Dismissed.
Worthy Paper Co., . . .	Mittineague, .	Overtime employment, .	Defaulted.
Worthy Paper Co., . . .	Mittineague, .	Overtime employment, .	Withdrawn.

¹ Concerns granting permits.

* For women; denied for minors.

TEMPORARY PERMITS GRANTED BY THE COMMISSIONER OF LABOR UNDER
 CLAUSE D, SECTION 24, CHAPTER 342, GENERAL ACTS OF 1917,
 FROM JUNE 30, 1917, TO JAN. 1, 1918.

NAME OF APPLICANT.	Residence.	Permit granted.
Addressograph Co., . . .	Boston,	Overtime employment of not more than 25 women on Sunday, Sept. 23, 1917.
Berwick Cake Co.,	Boston,	Employment of women Sunday, Nov. 25, 1917. Total number of hours of employment not to exceed fifty-four for week and one day's rest being allowed during the week.
Cambridge Rubber Co., . .	Cambridge,	Few hours Saturday afternoon, Sept. 8, 1917.
Carter, Wm., Co.,	Needham Heights, . .	Thirty-minute lunch period; two shifts.
Dolloff, C. W., & Co., . .	Boston,	Overtime employment of men on construction work at the Fish Pier, South Boston; this permit being granted for seventy-two hours ending at 5 P.M., Nov. 1, 1917.
Ehrman Mfg. Co.,	Malden,	Sunday employment, Dec. 16, 1917. Women employed on two eight-hour shifts.
Emmons Loom Harness Co., .	Lawrence,	Overtime employment of not more than 15 women on Saturday afternoon, Dec. 1, 1917, from 1 to 5 P.M.
Gray & Davis, Inc., . . .	Boston,	Sunday employment Dec. 16, 1917, 6 girls, one day's rest being allowed.
Herman Shoe Co.,	Millis,	Employment on Oct. 12, 1917.
Herman Shoe Co.,	Millis,	Sunday employment at Millis and storehouse in Boston, Nov. 11, 1917.
Ley, Fred T., Co.,	Springfield,	Overtime employment of men on overhead construction work at the Fish Pier, South Boston; this permit being granted for seventy-two hours ending at 5 P.M., Nov. 1, 1917.
Medford Woolen Mfg. Co., .	Medford,	Overtime employment of 6 women three hours each evening.
Metals Production Equipment Co.	Springfield,	Sunday employment Nov. 11, 1917.
New England Westinghouse Co.	Springfield,	Employment on Oct. 12, 1917.
Plant Bros. & Co.,	123 North St., Boston,	Employment on Oct. 12, 1917.
Putnam-Morrill Co., . . .	Boston,	Overtime employment of women from 6.15 to 9 P.M.; this permit being granted for seventy-two hours from and after 5 P.M., Nov. 1, 1917.
Rice & Hutchins, Inc., . .	Marlborough,	Saturday afternoon, Sept. 8, 1917.
Rice & Hutchins, Inc., . .	Marlborough,	Overtime employment of women, not exceeding four hours, Saturday, Sept. 22, 1917, and not exceeding two hours each evening and not later than 9 P.M. on Monday and Tuesday, Sept. 24 and 25, 1917.
Rice & Hutchins, Inc., . .	Marlborough,	Overtime employment of seven women on Sunday and Friday nights, Nov. 21 and 23, 1917, not later than 9 P.M.
Samoset Co.,	Boston,	Employment of women two evenings three hours each evening.

TEMPORARY PERMITS GRANTED BY THE COMMISSIONER OF LABOR UNDER
CLAUSE D, SECTION 24, CHAPTER 342, GENERAL ACTS OF 1917,
FROM JUNE 30, 1917, TO JAN. 1, 1918 — *Concluded.*

NAME OF APPLICANT.	Residence.	Permit granted.
Slade, D. & L., Co., . . .	Boston,	Overtime employment of 2 women from 6 to 10 P.M. on Nov. 7, 1917.
Sullivan Bros.,	42 Summer St., Boston, .	Overtime employment of women not later than 9 P.M., Nov. 23, 1917.
Talbot Woolen Mills, . . .	Norton,	Overtime employment, not to exceed four hours, Sept. 23, 1917.
Union Carpet Lining Co., .	Boston,	Saturday afternoon, Sept. 1, 1917, four hours.
Woodward & Cochey, Inc., .	Lynn,	Overtime employment of 12 girls Saturday, September 29, from 12.45 P.M. until 5.45 P.M.

CONCLUSION.

The establishment of this mode of procedure in meeting emergencies caused by the war created a precedent in the activities of the State. The fear was expressed that there could be no unanimity of feeling where the interests of contending parties would be diametrically opposed. This fear was not realized, and it is a pleasure to report that every decision has been unanimous, and that the justice of the decision was the only consideration.

The Commission holds weekly meetings, which seem to grow in interest as the war emergencies become more pressing.

Respectfully submitted,

THE WAR EMERGENCY INDUSTRIAL COMMISSION,

EDWIN MULREADY.

WILLIAM M. BUTLER.

HOWARD COONLEY.

Miss MARY E. MEEHAN.

GEORGE H. WRENN.

APPENDICES.

APPENDIX A.

EXPENDITURES FOR THE YEAR ENDING NOV. 30, 1917.

Salaries of members of the Board,	\$5,500 00
Salaries of Commissioner of Labor and deputies,	12,498 66
Salaries of inspectors and investigators,	36,913 79
Salaries of counsel, chief clerk, stenographers and other office employees,	17,842 67
Traveling expenses,	7,406 04
Rent and care of offices,	8,301 06
Contingent expenses, including printing, books, postage, stationery, office supplies, typewriters, telephone and sundries,	12,784 17
Total,	<hr/> \$101,246 39

APPENDIX B.

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED AND THE
NUMBER OF CERTIFICATES ISSUED UNDER THE PROVISIONS OF ACTS
OF 1913, CHAPTER 779, AND GENERAL ACTS OF 1916, CHAPTERS 66
AND 95, FROM JAN. 1, 1917, TO DEC. 31, 1917, INCLUSIVE.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Abington, . . .	96	-	46	-	-	134	-	81	-	-
Acton, . . .	7	-	4	1	-	7	-	4	1	-
Acushnet, . . .	43	10	41	1	-	85	21	78	1	-
Adams, . . .	512	7	341	-	-	683	9	494	-	-
Agawam, . . .	92	8	43	5	-	200	8	122	5	-
Alford, . . .	-	-	-	-	-	-	-	-	-	-
Amesbury, . . .	253	7	120	2	-	358	9	125	2	-
Amherst, . . .	83	1	84	-	-	83	1	84	-	-
Andover, . . .	229	2	120	-	2	316	2	160	-	2
Arlington, . . .	367	-	91	-	-	453	-	129	-	-
Ashburnham, . . .	18	1	13	-	2	19	1	13	-	2
Ashby, . . .	3	-	2	-	-	3	-	2	-	-
Ashfield, . . .	-	-	3	-	-	-	-	3	-	-
Ashland, . . .	60	-	24	-	-	70	-	41	-	-
Athol, . . .	281	4	176	1	-	390	4	277	1	-
Attleboro, . . .	802	62	500	3	-	1,160	76	837	5	-
Auburn, . . .	132	2	69	-	-	223	5	110	-	-
Avon, . . .	83	-	15	4	-	132	-	20	4	-
Ayer, . . .	11	-	3	-	1	13	-	3	-	1
Barnstable, . . .	10	-	6	-	-	11	-	8	-	-
Barre, . . .	17	-	31	-	-	20	-	31	-	-
Becket, . . .	7	-	5	-	-	7	-	5	-	-
Bedford, . . .	8	-	-	-	-	8	-	-	-	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Belchertown, . . .	10	-	6	-	-	10	-	6	-	-
Bellingham, . . .	12	-	10	2	-	13	-	10	2	-
Belmont, . . .	136	3	34	-	-	193	4	44	-	-
Berkley, . . .	8	-	6	-	-	12	-	7	-	-
Berlin, . . .	6	1	2	-	-	6	1	3	-	-
Bernardston, . . .	8	-	1	-	-	8	-	1	-	-
Beverly, . . .	413	20	120	-	-	1,033	43	285	-	-
Billerica, . . .	-	-	207	37	-	-	-	350	37	-
Blackstone, . . .	9	-	47	-	-	9	-	53	-	-
Blandford, . . .	2	-	2	-	-	2	-	4	-	-
Bolton, . . .	3	-	1	-	-	3	-	1	-	-
Boston, . . .	10,911	421	7,033	2,174	2,056	35,929	1,331	17,601	2,520	2,316
Bourne, . . .	29	-	5	-	-	29	-	5	-	-
Boxborough, . . .	-	-	1	-	-	-	-	1	-	-
Boxford, . . .	1	-	1	-	-	2	-	2	-	-
Boylston, . . .	4	-	6	-	-	5	-	7	-	-
Braintree, . . .	375	2	102	6	-	380	2	120	6	-
Brewster, . . .	-	-	-	-	-	-	-	-	-	-
Bridgewater, . . .	117	16	76	-	-	124	16	88	-	-
Brimfield, . . .	8	-	3	-	-	8	-	3	-	-
Brookton, . . .	2,940	100	696	3	-	4,741	153	1,553	5	-
Brookfield, . . .	39	-	15	-	-	48	-	26	-	-
Brookline, . . .	221	-	66	-	-	526	-	96	-	-
Buckland, . . .	20	-	18	-	-	22	-	25	-	-
Burlington, . . .	7	-	1	-	-	7	-	1	-	-
Cambridge, . . .	3,896	181	1,819	13	-	6,931	295	3,286	14	-
Canton, . . .	191	11	100	-	-	213	12	125	-	-
Carlisle, . . .	2	-	-	-	-	2	-	-	-	-
Carver, . . .	12	-	8	-	-	14	-	8	-	-
Charlemont, . . .	8	-	-	-	-	8	-	-	-	-
Charlton, . . .	32	-	22	1	-	38	-	24	1	-
Chatham, . . .	2	-	2	-	-	2	-	2	-	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Chelmsford, . . .	92	-	66	3	6	101	-	76	4	6
Chelsea, . . .	1,550	104	724	9	-	2,825	179	1,275	15	-
Cheshire, . . .	17	3	7	-	-	22	3	7	-	-
Chester, . . .	24	-	3	-	-	30	-	5	-	-
Chesterfield, . .	1	-	1	-	-	1	-	1	-	-
Chicopee, . . .	1,431	150	746	35	-	3,821	222	1,064	35	-
Chilmark, . . .	-	-	-	-	-	-	-	-	-	-
Clarksburg, . . .	10	-	31	1	-	11	-	32	1	-
Clinton, . . .	214	42	220	2	-	495	59	420	2	-
Cohasset, . . .	11	-	1	-	-	12	-	1	-	-
Colrain, . . .	29	1	18	-	-	37	2	20	-	-
Concord, . . .	71	1	42	4	3	85	1	55	4	3
Conway, . . .	14	-	11	5	4	14	-	13	5	4
Cummington, . .	-	-	1	-	-	-	-	1	-	-
Dalton, . . .	148	-	33	-	-	169	-	34	-	-
Dana, . . .	2	-	-	-	-	2	-	-	-	-
Danvers, . . .	458	-	-	35	8	787	-	-	47	15
Dartmouth, . . .	113	30	87	3	-	166	53	137	5	-
Dedham, . . .	179	4	137	-	-	317	8	204	-	-
Deerfield, . . .	45	-	-	-	8	45	-	-	-	8
Dennis, . . .	2	-	-	-	-	2	-	-	-	-
Dighton, . . .	51	4	21	-	-	75	4	25	-	-
Douglas, . . .	26	1	24	6	-	31	1	31	6	-
Dover, . . .	8	-	2	-	-	8	-	2	-	-
Dracut, . . .	169	1	76	-	-	210	1	98	-	-
Dudley, . . .	134	24	118	1	-	169	24	218	1	-
Dunstable, . . .	1	-	-	-	-	1	-	-	-	-
Duxbury, . . .	-	-	2	-	-	-	-	2	-	-
East Bridgewater, .	108	-	34	-	-	137	-	45	-	-
East Longmeadow, .	69	6	40	-	-	95	13	73	-	-
Eastham, . . .	1	-	-	-	-	1	-	-	-	-
Easton, . . .	164	6	57	2	-	241	7	77	2	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Easthampton, . . .	640	105	343	9	-	971	140	546	9	9
Edgartown, . . .	2	-	3	-	-	2	-	3	-	-
Egremont, . . .	-	-	-	-	-	-	-	-	-	-
Enfield, . . .	1	-	1	-	-	1	-	1	-	-
Erving, . . .	36	1	14	-	-	48	1	17	-	-
Essex, . . .	6	-	9	-	-	6	-	9	-	-
Everett, . . .	704	6	440	13	-	1,618	6	753	13	-
Fairhaven, . . .	252	27	111	4	3	444	41	178	4	3
Fall River, . . .	4,307	539	3,233	118	-	6,646	1,025	6,317	167	-
Falmouth, . . .	3	2	7	-	12	3	3	8	-	13
Fitchburg, . . .	672	77	552	15	-	2,169	162	1,436	15	-
Florida, . . .	-	-	-	-	-	-	-	-	-	-
Foxborough, . . .	89	-	49	-	-	112	-	57	-	-
Framingham, . . .	479	35	206	-	-	581	41	288	-	-
Franklin, . . .	162	10	81	-	3	204	21	118	-	3
Freetown, . . .	20	-	15	-	-	25	-	18	-	-
Gardner, . . .	433	75	239	2	-	610	120	403	3	-
Gay Head, . . .	-	-	-	-	-	-	-	-	-	-
Georgetown, . . .	41	-	16	-	-	61	-	20	-	-
Gill, . . .	8	-	-	-	-	8	-	-	-	-
Gloucester, . . .	953	23	297	3	-	1,028	26	355	3	-
Goshen, . . .	-	-	1	-	-	-	-	1	-	-
Gosnold, . . .	-	-	-	-	-	-	-	-	-	-
Grafton, . . .	60	-	40	6	-	75	-	46	6	-
Granby, . . .	2	-	2	-	-	2	-	2	-	-
Granville, . . .	6	-	6	-	1	8	-	7	-	1
Great Barrington, . . .	79	-	59	-	-	107	-	84	-	-
Greenfield, . . .	376	16	117	-	-	733	18	202	-	-
Greenwich, . . .	-	-	-	-	-	-	-	-	-	-
Groton, . . .	1	-	1	-	-	1	-	1	-	-
Groveland, . . .	120	1	29	-	-	194	1	43	-	-
Hadley, . . .	14	1	10	-	-	14	1	12	-	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Halifax, . . .	9	-	5	-	-	11	-	6	-	-
Hamilton, . . .	42	-	9	-	-	43	-	10	-	-
Hampden, . . .	10	-	1	-	-	14	-	1	-	-
Hancock, . . .	26	-	7	-	-	30	-	7	-	-
Hanover, . . .	42	2	13	2	-	55	2	27	2	-
Hanson, . . .	20	-	12	5	-	23	-	16	5	-
Hardwick, . . .	71	7	41	-	-	72	7	41	-	-
Harvard, . . .	1	-	-	-	-	1	-	-	-	-
Harwich, . . .	3	-	3	-	-	3	-	3	-	-
Hatfield, . . .	13	-	10	-	-	13	-	10	-	-
Haverhill, . . .	2,229	165	622	11	-	4,654	314	1,832	14	-
Hawley, . . .	3	-	-	-	-	3	-	-	-	-
Heath, . . .	-	-	-	-	-	-	-	-	-	-
Hingham, . . .	70	-	17	-	3	84	-	24	-	3
Hinsdale, . . .	42	-	13	-	-	51	-	21	-	-
Holbrook, . . .	115	-	23	-	-	166	-	37	-	-
Holden, . . .	51	-	21	-	-	61	-	22	-	-
Holland, . . .	-	-	-	-	-	-	-	-	-	-
Holliston, . . .	48	-	20	2	-	56	-	24	2	-
Holyoke, . . .	2,513	227	1,070	5	-	3,850	140	1,804	5	-
Hopedale, . . .	89	3	37	1	-	106	3	50	1	-
Hopkinton, . . .	57	-	2	-	-	80	-	2	-	-
Hubbardston, . . .	2	-	6	-	-	3	-	7	-	-
Hudson, . . .	236	37	148	2	-	307	45	196	2	-
Hull, . . .	-	-	26	-	-	-	-	26	-	-
Huntington, . . .	28	-	9	-	-	29	-	10	-	-
Ipewich, . . .	153	41	70	3	-	200	52	75	3	-
Kingston, . . .	46	1	23	-	-	55	1	28	-	-
Lakeville, . . .	16	-	8	2	3	24	-	14	2	3
Lancaster, . . .	36	-	27	-	-	45	-	29	-	-
Lanesborough, . . .	8	-	7	-	-	10	-	7	-	-
Lawrence, . . .	3,542	489	2,253	131	-	7,056	847	4,075	134	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Lee,	60	-	11	-	-	65	-	11	-	-
Leicester,	92	-	65	12	7	122	-	79	13	7
Lenox,	38	-	13	-	-	40	-	14	-	-
Loominster,	285	38	477	52	-	1,132	150	878	52	-
Leverett,	3	-	1	-	-	3	-	1	-	-
Lexington,	66	1	19	-	-	87	1	24	-	-
Leyden,	-	-	-	-	-	-	-	-	-	-
Lincoln,	1	-	2	-	-	1	-	3	-	-
Littleton,	10	-	14	-	-	10	-	14	-	-
Longmeadow,	17	-	5	-	-	21	-	5	-	-
Lowell,	2,540	269	1,624	175	-	7,032	814	4,181	232	-
Ludlow,	310	102	119	20	-	580	141	167	20	-
Lunenburg,	17	-	13	-	-	17	-	17	-	-
Lynn,	1,401	61	662	5	-	4,987	165	1,242	5	-
Lynnfield,	7	-	3	-	-	8	-	3	-	-
Malden,	1,115	4	854	78	15	5,326	6	1,018	125	15
Manchester,	23	1	9	-	-	33	1	9	-	-
Mansfield,	147	4	76	9	-	152	6	106	10	-
Marblehead,	340	-	32	20	-	400	-	44	20	-
Marion,	4	-	2	-	-	4	-	2	-	-
Marlborough,	615	23	263	-	-	731	31	546	-	-
Marshfield,	-	-	14	-	-	-	-	14	-	-
Mashpee,	-	-	-	-	-	-	-	-	-	-
Mattapoisett,	-	-	-	-	-	-	-	-	-	-
Maynard,	150	19	90	-	-	190	19	152	-	-
Medfield,	30	-	6	-	-	35	-	7	-	-
Medford,	809	3	272	-	-	1,178	3	391	-	-
Medway,	69	1	31	2	-	75	1	35	2	-
Melrose,	320	-	112	-	20	431	-	134	-	20
Mendon,	22	1	9	-	-	23	1	10	-	-
Merrimac,	58	-	17	-	-	81	-	28	-	-
Methuen,	654	42	377	5	6	1,028	81	584	5	6

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Middleborough, . . .	384	-	147	-	-	434	-	179	-	-
Middlefield, . . .	-	-	-	-	-	-	-	-	-	-
Middleton, . . .	1	-	16	-	-	1	-	16	-	-
Milford, . . .	331	42	184	26	-	331	42	184	26	-
Millbury, . . .	202	6	120	-	-	268	6	158	-	-
Millis, . . .	22	-	13	6	-	24	-	13	6	-
Millville, . . .	32	-	51	-	-	39	-	61	-	-
Milton, . . .	111	-	18	-	-	144	-	19	-	-
Monroe, . . .	-	-	2	1	-	-	-	2	1	-
Monson, . . .	85	1	54	1	-	88	1	57	1	-
Montague, . . .	152	5	78	-	6	176	5	97	-	6
Monterey, . . .	-	-	-	-	-	-	-	-	-	-
Montgomery, . . .	5	-	1	-	-	5	-	1	-	-
Mount Washington,	-	-	-	-	-	-	-	-	-	-
Nahant, . . .	29	-	7	-	-	46	-	8	-	-
Nantucket, . . .	16	-	4	16	-	16	-	4	16	-
Natick, . . .	247	9	69	28	-	335	9	124	44	-
Needham, . . .	179	2	72	-	-	190	3	96	-	-
New Ashford, . . .	-	-	-	-	-	-	-	-	-	-
New Bedford, . . .	595	413	1,458	266	192	6,831	1,656	4,782	319	192
New Braintree, . . .	-	-	-	-	-	-	-	-	-	-
New Marlborough, . . .	2	-	-	-	-	2	-	-	-	-
New Salem, . . .	5	-	1	-	-	5	-	1	-	-
Newbury, . . .	29	-	12	2	-	37	-	14	2	-
Newburyport, . . .	1,095	11	300	5	2	4,820	335	1,110	7	5
Newton, . . .	951	50	324	-	-	1,525	60	476	-	-
Norfolk, . . .	15	-	13	3	-	18	-	16	3	-
North Adams, . . .	900	50	493	4	11	2,219	83	987	4	11
North Andover, . . .	220	3	110	-	-	325	3	196	-	-
North Attleborough, . . .	125	-	295	-	-	331	-	411	-	-
North Brookfield, . . .	68	-	38	-	-	81	-	49	-	-
North Reading, . . .	29	-	7	-	-	29	-	7	-	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Northampton, . . .	548	22	334	3	2	744	27	562	3	2
Northborough, . . .	13	-	6	-	-	18	-	8	-	-
Northbridge, . . .	356	35	287	25	-	452	38	342	25	-
Northfield, . . .	5	-	-	-	-	5	-	-	-	-
Norton, . . .	95	1	46	-	-	115	1	66	-	-
Norwell, . . .	17	-	10	1	-	19	-	14	1	-
Norwood, . . .	343	7	100	-	-	431	8	122	-	-
Oak Bluffs, . . .	4	-	2	-	-	4	-	2	-	-
Oakham, . . .	1	-	-	-	-	1	-	-	-	-
Orange, . . .	139	-	46	-	1	166	-	50	-	1
Orleans, . . .	3	-	4	-	-	3	-	4	-	-
Otis, . . .	-	-	-	-	-	-	-	-	-	-
Oxford, . . .	105	5	74	1	-	137	5	90	1	-
Palmer, . . .	269	24	181	3	7	319	27	201	3	7
Paxton, . . .	4	-	2	-	-	4	-	2	-	-
Peabody, . . .	452	104	141	5	-	753	148	217	5	-
Pelham, . . .	1	-	1	-	-	1	-	1	-	-
Pembroke, . . .	18	-	11	-	-	22	-	14	-	-
Pepperell, . . .	22	-	2	-	-	26	-	2	-	-
Peru, . . .	1	-	-	-	-	1	-	-	-	-
Petersham, . . .	-	-	-	-	-	-	-	-	-	-
Phillipston, . . .	1	-	2	-	-	1	-	4	-	-
Pittsfield, . . .	1,619	68	420	-	13	2,383	109	808	-	13
Plainfield, . . .	-	-	1	-	-	-	-	1	-	-
Plainville, . . .	41	-	6	-	-	57	-	7	-	-
Plymouth, . . .	367	80	137	2	30	473	91	219	2	30
Plympton, . . .	6	-	4	-	-	7	-	5	-	-
Prescott, . . .	-	-	-	-	-	-	-	-	-	-
Princeton, . . .	6	-	-	-	-	6	-	-	-	-
Provincetown, . . .	11	-	16	-	-	11	-	16	-	-
Quincy, . . .	1,026	85	430	-	-	2,036	115	761	-	-
Randolph, . . .	122	-	74	19	-	164	-	117	19	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Raynham, . .	56	17	26	1	-	65	21	30	1	-
Reading, . .	130	-	44	-	-	169	-	64	-	-
Rehoboth, . .	7	-	1	-	-	10	-	2	-	-
Revere, . . .	403	11	329	-	-	1,570	26	685	-	-
Richmond, . .	-	-	-	-	-	-	-	-	-	-
Rochester, . .	4	-	1	-	-	4	-	1	-	-
Rockland, . .	163	-	62	51	-	198	-	68	51	-
Rockport, . .	70	1	20	6	1	101	1	30	6	1
Rowe,	-	-	-	-	-	-	-	-	-	-
Rowley, . . .	28	1	16	-	-	40	1	17	-	-
Royalston, . .	14	1	6	-	-	17	1	8	-	-
Russell, . . .	30	2	12	-	-	31	2	12	-	-
Rutland, . . .	14	1	3	-	-	14	1	3	-	-
Salem,	707	46	439	11	-	1,501	77	651	3	-
Salisbury, . .	47	-	22	-	-	81	-	38	-	-
Sandisfield, . .	-	-	1	-	-	-	-	1	-	-
Sandwich, . . .	7	-	4	-	3	7	-	4	-	3
Saugus,	562	6	133	50	27	922	6	177	57	35
Savoy,	-	-	4	-	-	-	-	4	-	-
Saxonville, . .	18	1	6	-	-	20	1	6	-	-
Scituate, . . .	-	-	20	-	-	-	-	20	-	-
Seekonk, . . .	7	-	34	-	-	7	-	40	-	-
Sharon,	-	-	-	-	-	-	-	-	-	-
Sheffield, . . .	2	-	-	-	-	2	-	-	-	-
Shelburne, . .	5	-	8	-	-	6	-	9	-	-
Sherborn, . . .	8	-	4	-	-	13	-	7	-	-
Shirley,	36	-	41	-	-	41	-	46	-	-
Shrewsbury, . .	63	1	35	1	2	91	1	80	1	2
Shutesbury, . .	-	-	-	-	-	-	-	-	-	-
Somerset, . . .	87	5	52	3	1	100	7	72	3	1
Somerville, . .	1,560	57	837	-	-	4,013	126	1,465	-	-
South Hadley, .	178	1	94	4	-	263	2	161	4	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Southampton, . . .	7	1	4	-	-	9	1	5	-	-
Southborough, . . .	11	-	8	-	-	11	-	11	-	-
Southbridge, . . .	570	128	458	23	-	624	431	478	23	-
Southwick, . . .	5	-	2	-	-	5	-	2	-	-
Spencer, . . .	139	-	172	1	6	157	-	179	1	6
Springfield, . . .	4,195	359	1,665	28	-	7,347	592	3,249	33	-
Sterling, . . .	18	-	8	-	-	23	-	10	-	-
Stockbridge, . . .	7	-	7	-	-	7	-	7	-	-
Stoneham, . . .	175	-	95	36	-	267	-	127	38	-
Stoughton, . . .	175	4	59	-	-	236	8	99	-	-
Stow, . . .	4	-	-	-	-	5	-	-	-	-
Sturbridge, . . .	37	-	27	-	-	51	-	34	-	-
Sudbury, . . .	6	-	3	-	-	6	-	3	-	-
Sunderland, . . .	-	-	1	-	-	-	-	1	-	-
Sutton, . . .	71	2	60	2	-	82	2	83	2	-
Swampscott, . . .	146	4	37	-	1	227	11	52	-	1
Swansea, . . .	30	1	31	1	1	39	1	50	1	1
Taunton, . . .	1,060	166	597	9	-	1,469	271	837	9	-
Templeton, . . .	23	1	21	-	-	25	1	22	-	-
Tewksbury, . . .	43	-	16	-	-	55	-	18	-	-
Tisbury, . . .	3	-	2	-	-	3	-	2	-	-
Tolland, . . .	-	-	-	-	-	-	-	-	-	-
Topsfield, . . .	5	-	1	-	-	5	-	1	-	-
Townsend, . . .	18	-	9	-	-	20	-	9	-	-
Truro, . . .	-	-	1	-	-	-	-	1	-	-
Tyngsborough, . . .	30	3	8	-	-	35	3	8	-	-
Tyringham, . . .	-	-	-	-	-	-	-	-	-	-
Upton, . . .	36	-	7	5	-	40	-	7	5	-
Uxbridge, . . .	314	30	155	3	-	409	37	201	3	-
Wakefield, . . .	335	19	147	1	-	427	36	173	1	-
Wales, . . .	4	-	7	-	-	4	-	7	-	-
Walpole, . . .	183	5	160	-	-	208	5	163	-	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Continued.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Waltham, . . .	1,112	68	327	4	-	1,670	97	519	6	-
Ware, . . .	283	3	160	2	-	296	5	210	2	-
Wareham, . . .	63	1	47	1	7	79	1	49	1	7
Warren, . . .	40	3	99	-	-	40	3	117	-	-
Warwick, . . .	-	-	-	-	-	-	-	-	-	-
Washington, . . .	-	-	-	-	-	-	-	-	-	-
Watertown, . . .	560	41	159	-	-	816	54	204	-	-
Wayland, . . .	22	-	6	-	-	34	-	9	-	-
Webster, . . .	425	28	317	22	-	582	31	474	27	-
Wellesley, . . .	84	2	28	16	-	93	2	32	16	-
Wellfleet, . . .	1	-	1	-	-	1	-	1	-	-
Wendell, . . .	3	-	1	-	-	3	-	1	-	-
Wenham, . . .	18	-	3	-	-	21	-	3	-	-
West Boylston, . . .	3	-	2	-	-	3	-	3	-	-
West Bridgewater, . . .	94	2	31	-	-	113	4	38	-	-
West Brookfield, . . .	25	-	12	-	-	33	-	15	-	-
West Newbury, . . .	22	-	7	-	-	36	-	16	-	-
West Springfield, . . .	518	18	205	-	-	881	33	369	-	-
West Stockbridge, . . .	1	-	-	-	-	1	-	-	-	-
West Tisbury, . . .	-	-	-	-	-	-	-	-	-	-
Westborough, . . .	160	-	45	-	-	181	-	49	-	-
Westfield, . . .	280	52	197	37	-	765	68	508	38	-
Westford, . . .	83	10	49	1	-	83	10	49	1	-
Westhampton, . . .	1	-	-	-	-	1	-	-	-	-
Westminster, . . .	13	-	8	-	-	13	-	9	-	-
Weston, . . .	14	-	3	3	-	16	-	3	3	-
Westport, . . .	44	8	26	-	-	52	10	31	-	-
Westwood, . . .	25	-	2	2	-	28	-	2	2	-
Weymouth, . . .	373	-	115	-	-	521	3	176	-	-
Whately, . . .	1	-	-	-	-	1	-	-	-	-
Whitman, . . .	247	-	103	34	-	394	-	122	34	-
Wilbraham, . . .	35	11	20	7	-	42	12	22	8	-

NUMBER OF PERSONS TO WHOM CERTIFICATES WERE ISSUED, ETC. —
Concluded.

NAME OF CITY OR TOWN.	NUMBER OF PERSONS ISSUED CERTIFICATES.					NUMBER OF CERTIFICATES ISSUED.				
	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.	Educational (Literate).	Educational (Illiterate).	Employment.	Summer Vacation.	Special Part Time.
Williamsburg, .	43	-	23	2	-	52	-	26	2	-
Williamstown, .	109	-	35	-	-	121	-	55	-	-
Wilmington, .	-	-	38	-	-	-	-	50	-	-
Winchendon, .	115	3	137	-	3	132	4	148	-	4
Winchester, .	85	2	32	-	-	131	2	46	-	-
Windsor, .	4	-	1	-	-	4	-	1	-	-
Winthrop, .	163	1	40	2	-	196	1	52	2	-
Woburn, .	236	16	75	-	-	284	17	83	-	-
Worcester, .	3,224	310	2,273	28	-	11,272	762	6,322	38	-
Worthington, .	1	-	-	-	-	1	-	-	-	-
Wrentham, .	28	-	9	-	-	32	-	12	-	-
Yarmouth, .	3	-	-	-	-	3	-	-	-	-
Totals, .	87,740	6,172	47,137	3,885	2,479	187,959	12,570	91,417	4,515	2,759

